

# SPECS FOR YOUR FILES:

CRAWLER TRACTORS—TRACTOR SHOVELS—GRADERS—STEEL AND PNEUMATIC-TIRED ROLLERS—SCRAPERS—COMPRESSORS

JULY, 1961

PRICE \$1.00

# Construction Methods

AND  
EQUIPMENT

A M C R A W - H I L L P U B L I C A T I O N

## EQUIPMENT MAINTENANCE GUIDE

Construction machinery can produce a profit only while it is working. And keeping his machines working longer and more efficiently is the aim of every contractor.

Unfortunately, wishing does not keep equipment in good operating condition or repair it after it has broken down. This requires systematic planning, knowledgeable mechanics, and proper tools.

This special report, CM&E's 13th annual Equipment Maintenance Guide, is devoted to the Tools of Maintenance. It is the result of more than 50 in-the-shop interviews with some of the country's leading contractors.

Many of them consider their maintenance tools among the most valuable equipment items they own.

continued on page 81

## TOOLS OF MAINTENANCE

CONTENTS, PAGE 4



THEY PLANNED ON  
"POWERSTEEL"  
TO HOLD  
DOWN COSTS

digging hardpan  
and boulders on  
highway job



"POWERSTEEL" in action for Wood & Busch near Georgetown, Ky.

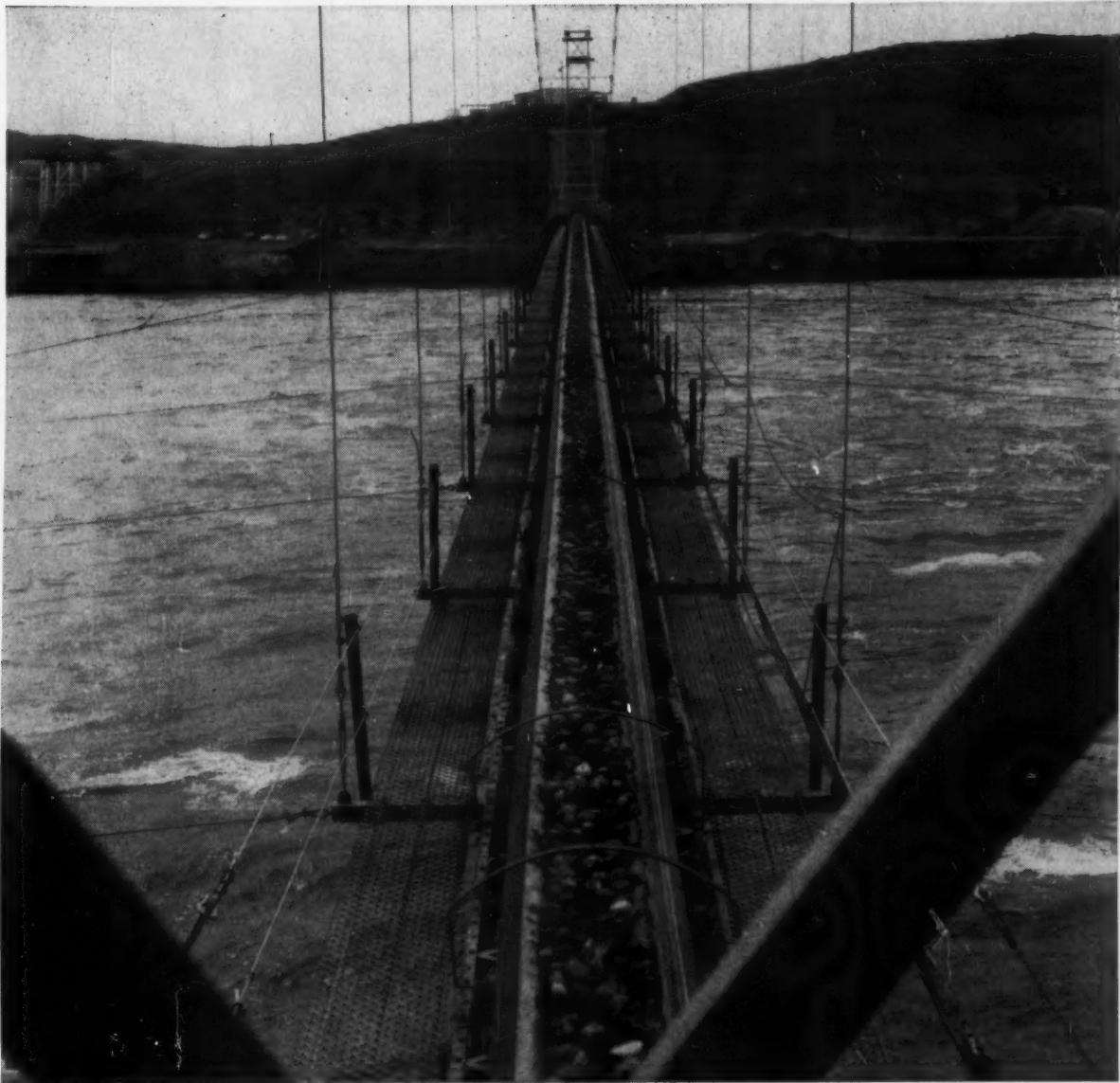
## Wood & Busch Co. Switches to "POWERSTEEL" on Shovel— Reports Service Doubled—Rope Still in Use!

Drilling shot holes 16 to 18 feet apart saved time, but boulders and hardpan put extra pressure on Wood & Busch's big shovel. After numerous rope breakdowns, "POWERSTEEL" was tried. "Best we've ever used," says Field Office Manager George E. Neal. Again and

again Yellow Strand "POWERSTEEL" proves that, in the long run, it's the best wire rope buy on the market. Put "POWERSTEEL" to your profit test. You'll find it pays. Call your Yellow Strand distributor or representative anytime for service, for satisfaction.

**Yellow Strand**  
"POWERSTEEL"

BRODERICK & BASCOM ROPE CO.  
ST. LOUIS • PEORIA • HOUSTON • SEATTLE



## River of rocks flows over river of water

Aggregate for Ice Harbor Dam project delivered by B.F.Goodrich belt

WHAT do you do when the dam you're building is on one side of a river, the aggregate you need is on the other?

Engineers on the Ice Harbor Dam project built a "belt-bridge" to span the 920-foot width of the Snake River. A single conveyor belt moves the rock, sand, gravel across the bridge, then takes it another 270 feet on up to the batching plant.

B.F.Goodrich men, working with the contractor, recommended that the

rubber belt be made with BFG Nyfil fabric. Nylon used for cross threads in the fabric adds extra strength to the belt so it can stand wear and tear that causes other belts to break down.

According to the engineers, the B.F.Goodrich belt is doing an excellent job of carrying the 660-ton-per-hour loads of jagged rock. After hauling the 1½ million tons on this job, it'll probably be moved to another construction site for more years of service.

Your B.F.Goodrich distributor has

full information about this Nyfil belt. And, as a factory-trained specialist in rubber products, he can answer your questions about any of the rubber products BFG makes for construction work. *B.F.Goodrich Industrial Products Co., Dept. M-148, Akron 18, Ohio.*

**B.F.Goodrich**  
**CONVEYOR BELTS**

# Fastest in 30 Yrs



**Symons steel-ply forms provide record forming speed on big motel job**

Ludwig Zahn, contractor on the new Holiday Inn, Mansfield, Ohio, reports the Symons Forming System provided faster pouring and stripping than any he has used during his 30 years in construction.

Particularly important was the king-stringer method which the contractor and the Symons engineering department devised to form the deck of the structure. King-stringers constructed of 2 x 4's bolted to 2 x 10's were 8 ft. on center. In between this were 4 x 4's supported by shores. Regular



View from "down under" showing stripping procedure. Note work space available with this type of slab system.

4-foot panels were then laid on the stringers and tied together with a Symons bolt and wedge in the center of each panel. To strip, they simply removed the 4 x 4 with its shoring and pulled down the panels. The stringer was left in position as support shoring for the required length of time.

For the complete story, write us. Symons forms are rented with purchase option.



**SYMONS CLAMP & MFG. CO.**

4255 Diversey Ave., Dept. G-1, Chicago 39, Ill.

Warehouses Thruout the U.S.A.

MORE SAVINGS FROM SYMONS

Circle 2 on Reader Service Card

# Construction Methods AND EQUIPMENT

JULY, 1961

Publisher	Robert F. Boger
Editor	Henry T. Perez
Managing Editor	Frank W. Corrigan
Associate Editors	San Francisco: L. L. Wise Washington: V. B. Smith
Assistant Editors	William G. Mooney John Silinsh Eugene J. Schreiber
Presentation Editor	Joseph J. Fries Assistant: Kaaren Lewis
Editorial Secretaries	Rosemary McKenna Helen Boskus
Business News:	Manager: Elsie Eaves Editor: James H. Webber
McGraw-Hill World News	Director: John Wilhelm Managing Editor: Margaret Ralston
Domestic News Bureaus:	
ATLANTA: B. E. Barnes • CHICAGO: Stewart W. Ramsey	
CLEVELAND: Arthur Zimmerman • DALLAS: Marvin Reid	
DETROIT: Donald MacDonald • LOS ANGELES: Kemp Anderson	
SAN FRANCISCO: Jenness Keene • WASHINGTON: G. B. Bryant, Jr.	
SEATTLE: Ray Bloomberg	
Foreign News Bureaus:	
LONDON: John Shinn • PARIS: Robert Farrell • BONN: P. Forbath	
MEXICO CITY: Peter Weaver • BEIRUT: O. M. Marashian	
CARACAS: John Pearson • MOSCOW: Ernest Conine	
TOKYO: Sol Sanders • RIO DE JANEIRO: Leslie Warren	
Advertising Sales Manager	David J. McGrath
Circulation Manager	E. F. Bressler

MEMBER



VOLUME 43

NUMBER 7

CONSTRUCTION METHODS AND EQUIPMENT, July 1961, Established in 1919. Published monthly by McGraw-Hill Publishing Co., Inc., James H. McGraw (1860-1948), Founder.

Available only by paid subscription. Subscriptions are solicited only from persons engaged in construction or in supplying the construction industry. Position and company connection must be indicated on subscription orders forwarded to address shown in box below. Publisher reserves the right to refuse non-qualified subscriptions.

United States subscription rate for individuals in the field of publication \$2 per year, single copies \$1; foreign \$15 per year, payable in advance.

Editorial, Executive, Circulation, and Advertising offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N.Y. Telephone: Longacre 4-3000. Teletype: TWX N.Y. 1-1636. Cable Address: McGRAWHILL, New York.

Printed at Garden City, L.I., N.Y.; second-class mail postage paid at New York, N.Y., and at additional mailing offices. Title © registered at U.S. Patent Office. © Copyrighted 1961, McGraw-Hill Publishing Company, Inc. Quotations on bulk reprints of articles available on request. All rights reserved, including the right to reproduce the contents of this publication, either in whole or in part.

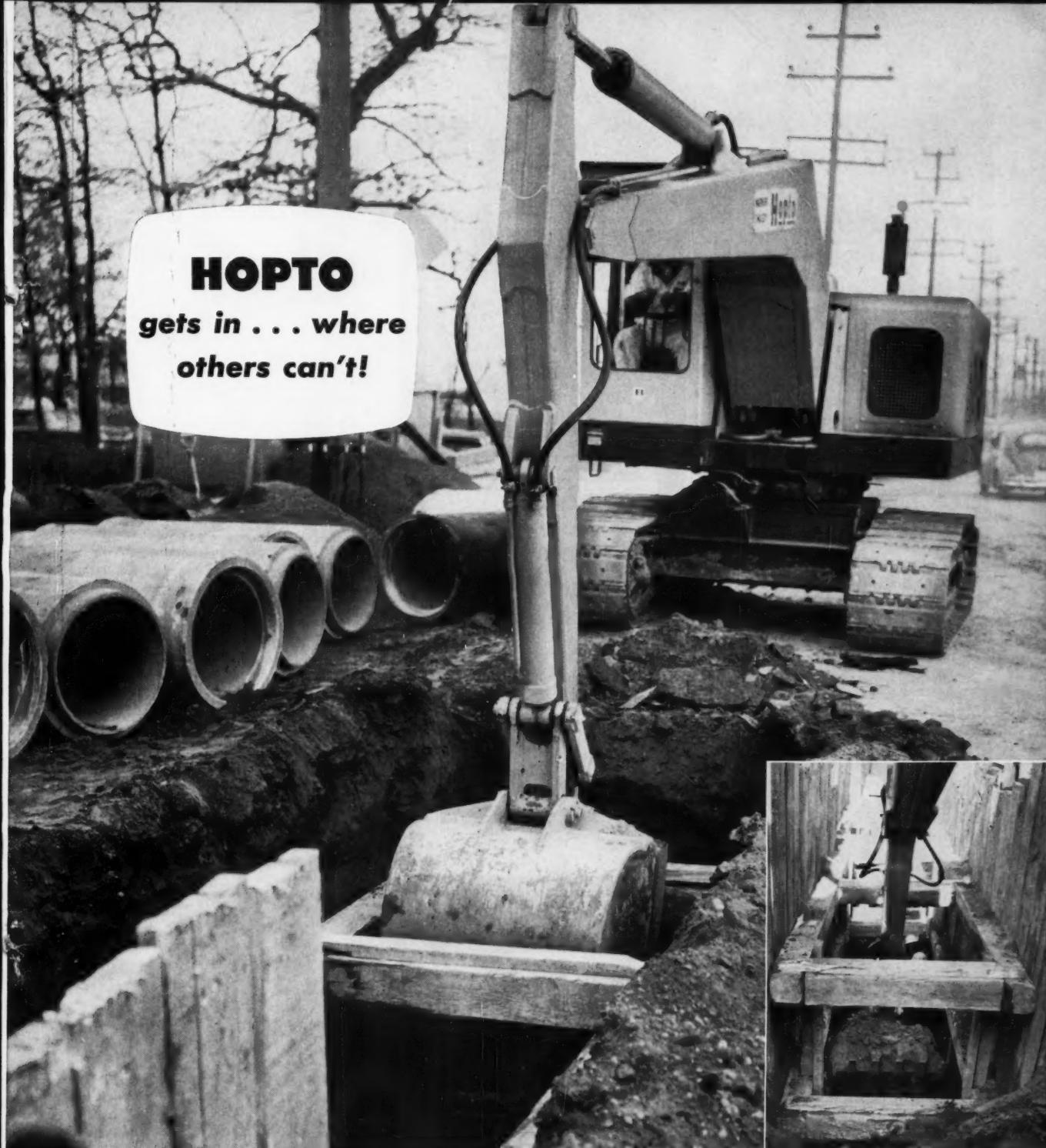
Officers of the Publications Division: Nelson L. Bond, President; Sheldon Fisher, Wallace F. Traendly, Senior Vice Presidents; John R. Callahan, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator.

Officers of the Corporation: Donald C. McGraw, President; Joseph A. Gerardi, Hugh J. Kelly, Harry L. Waddell, Executive Vice Presidents; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary.

UNCONDITIONAL GUARANTEE—Our primary aim is to provide subscribers with a useful and valuable publication. Your comments and suggestions for improvement are encouraged and will be most welcome. The publisher, upon written request, agrees to refund the part of the subscription price applying to the remaining unfulfilled portion of the subscription—if editorial service is unsatisfactory.

SUBSCRIPTIONS: Send subscription correspondence and change of address to Fulfillment Manager, CONSTRUCTION METHODS AND EQUIPMENT, 330 W. 42nd St., New York 36, N.Y. Subscribers should notify publisher promptly of any change of address, giving old as well as new address, and including postal zone if any. If possible, enclose an address label from a recent issue of the magazine. Please allow one month for change to become effective.

Postmaster: Please send Form 3579 to Fulfillment Manager, CONSTRUCTION METHODS AND EQUIPMENT, 330 W. 42nd St., N.Y. 36, N.Y.



**HOPTO**  
gets in . . . where  
others can't!

Check Hopco's advantages on any trenching or excavating job . . . digs in confined areas . . . works easily over and around shoring and cross services . . . gets a full bucket on every pass and spots it accurately . . . eliminates hand tool work . . . drives and pulls sheeting . . . places pipe . . . backfills and completes the job. See your dealer for the Hopco model and attachments that meet your requirements.

**WARNER & SWASEY**  
**Gradall**  
CLEVELAND 3, OHIO  
W S  
Hopco

world's largest line of hydraulic  
construction and excavating equipment . . .  
dealers in all principal cities.

Circle 3 on Reader Service Card

# *Construction Methods*

AND  
EQUIPMENT

JULY, 1961

## ON THE COVER

Construction Methods' July cover pays homage to the two prime requisites of a good maintenance shop—skilled hands and up-to-date tools. From left to right, the photos on the cover show valve grinding, equipment handling, testing, and machining operations. The photos were taken by CM&E staffers who visited more than 50 contractors' maintenance shops in the past few months to gather the material for this report on the Tools of Maintenance.

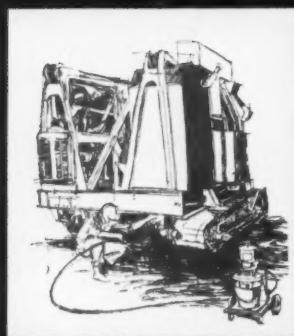
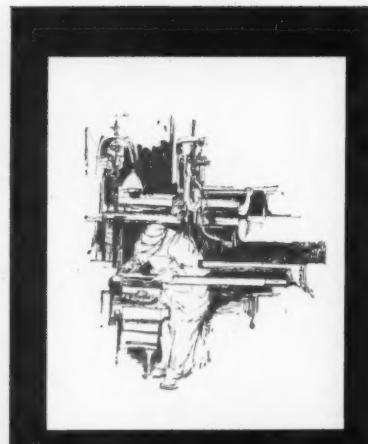
## DEPARTMENTS

Washington News .....	13
Job Talk .....	20
Machinery Market Trends .....	32
Construction Business .....	42
Picture of the Month .....	61
Construction News in Pictures ..	65
Construction 'Round the World ..	77
Editorial .....	81
Construction Equipment News ..	170
New Product Briefs .....	200
Sales and Service .....	209
New Publications .....	212
Advertisers' Literature .....	219
Methods Memo .....	224
Reader Service Card .....	225

## NEXT MONTH

Casting prestressed bridge sections including girders, deck, curb, and sidewalk in one piece enables a contractor to complete one span a day after pile bents are in place on a 2-mi causeway near Port Lavaca, Tex. Each precast bridge section is 30 ft wide (half the width of the bridge) and 60 ft long. In the casting yard, special hydraulically operated forms speed production. On the water, a unique floating crane places two of the 150-ton bridge sections a day.

Credits — Drawings in this issue by Kaaren Lewis.



## EQUIPMENT MAINTENANCE GUIDE

### CLEANING ...

Mechanics say they do a better servicing job when a rig is cleaned before they start work on it ..... 82

### HANDLING ...

Equipment handling time in the shop is as costly as down time in the field. Here's how to reduce it ..... 84

### WELDING ...

There are many different types of welders. Here's how to choose the unit that suits your shop ..... 92

### PRESSING ...

Disassembling and assembling equipment parts are easy jobs—if the right tools are available ..... 104

### MACHINING ...

Contractors say there is hardly a job that a well-equipped machine shop can't handle ..... 116

### GRINDING ...

Portable and bench grinders are the tools that keep other shop equipment in top condition ..... 120

### PAINTING ...

A well-equipped paint shop gives you a chance to protect your valuable investment in machinery ..... 124

### LUBRICATING ...

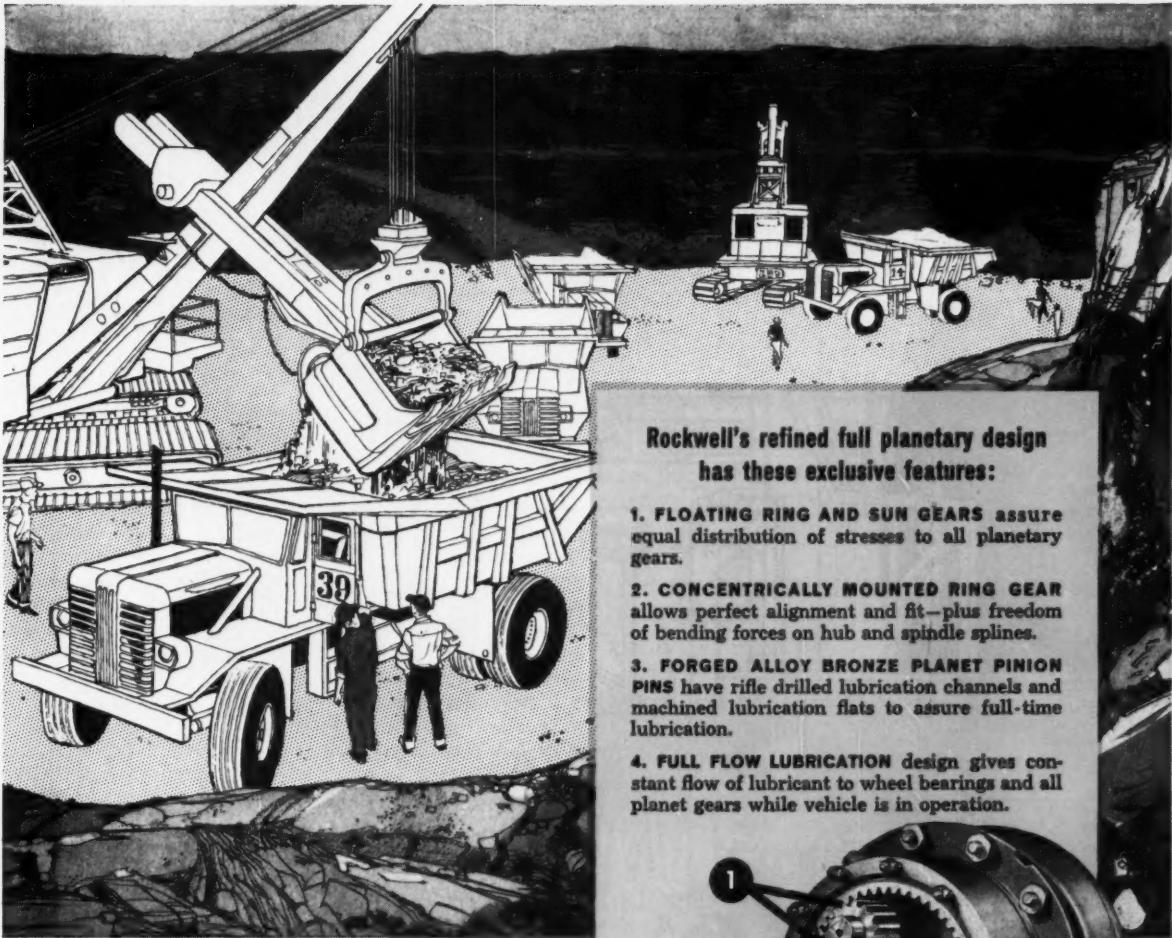
Equipment manufacturers are making lubrication easier to perform. So are several new tools ..... 132

### SPECIALIZED TOOLS ...

A round-up of new tools for servicing tires, batteries, engines and other components ..... 144

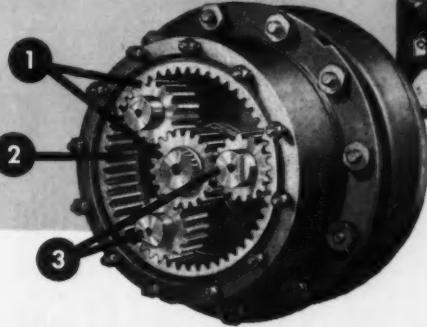
### SPECS FOR YOUR FILES

CRAWLER TRACTORS .....	148
TRACTOR SHOVELS .....	150
MOTOR GRADERS .....	154
PNEUMATIC-TIRED ROLLERS...	156
STEEL ROLLERS .....	158
TRACTOR-DRAWN SCRAPERS...	161
SELF-PROPELLED SCRAPERS...	162
COMPRESSORS .....	164



**Rockwell's refined full planetary design  
has these exclusive features:**

1. **FLOATING RING AND SUN GEARS** assure equal distribution of stresses to all planetary gears.
2. **CONCENTRICALLY MOUNTED RING GEAR** allows perfect alignment and fit—plus freedom of bending forces on hub and spindle splines.
3. **FORGED ALLOY BRONZE PLANET PINION PINS** have rifle drilled lubrication channels and machined lubrication flats to assure full-time lubrication.
4. **FULL FLOW LUBRICATION** design gives constant flow of lubricant to wheel bearings and all planet gears while vehicle is in operation.



## **ROCKWELL-STANDARD PLANETARY AXLES**

# **BEST DRIVE FOR THE HEAVYWEIGHTS!"**

Here's new rugged dependability for prime movers, four-wheel tractors, heavy off-road wagons, mining and agricultural equipment, and many other heavy-duty applications. Rockwell-Standard's complete line of planetary axles are available in capacities up to 150,000 pounds. And to meet every job need, there is a planetary steering axle operationally matched to each rigid planetary in the line.

The large reductions possible with Rockwell's full planetary, double-reduction axles enable them to ideally perform most heavy-duty off-highway operations. Because the substantial planetary reduction is located in the wheel hub, axle shafts and first reduction gears carry only nominal torsional loads—give long trouble-free service. For the best heavyweight drive, specify Rockwell-Standard.

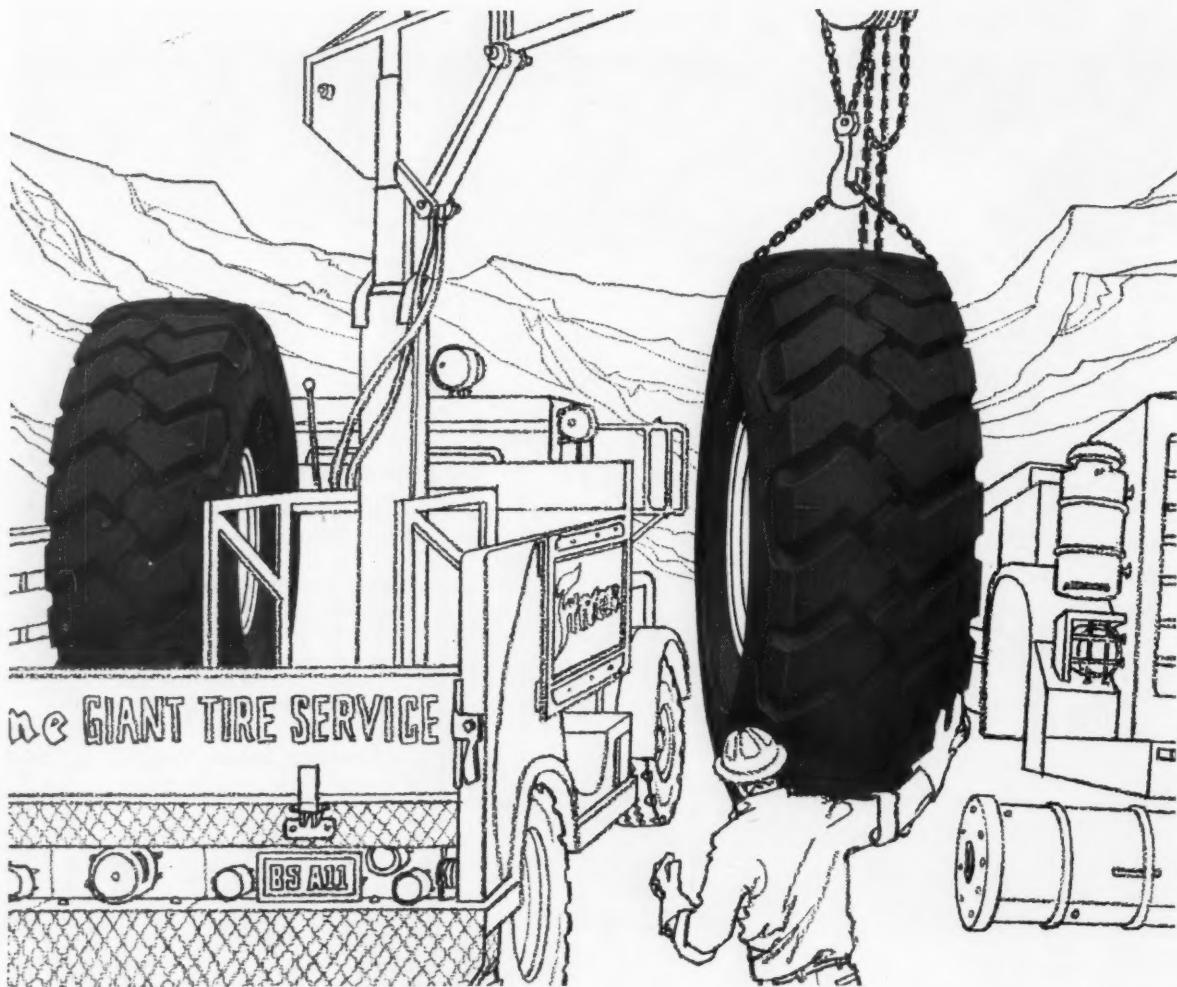
*Another Product of...*

**ROCKWELL-STANDARD**  
CORPORATION



Transmission and Axle Division, Detroit 32, Michigan

Circle 5 on Reader Service Card



## Firestone boosts production with **TOUGHER TIRES AND 24-HOUR SERVICE**

1. **Firestone Giant Tires** give you added insurance against penalty-day losses! That's because extra hours of use are built into every SUPER ROCK GRIP tire. With bonus plies of Shock-Fortified nylon, the body is armored against impact breaks. And Firestone Rubber-X is super-toughened for work over sharp rock and shale.
2. **Firestone Giant Tire Service** specialists, with fully equipped trucks, stand 24-hour duty to keep production up. Put one of these men on your project and you can forget tire maintenance problems. He'll solve them—often before they occur!

Find out today how Firestone's Giant Tire, Giant Service Team can reduce your downtime losses. See your Firestone Dealer or Store. Or write Manager, Off-The-Highway Tires, The Firestone Tire & Rubber Company, Akron, Ohio.

**Always Specify Firestone Tires When Ordering New Equipment.**

# Firestone

**FIRST IN OFF-THE-HIGHWAY TIRE NEEDS**

Copyright 1961, The Firestone Tire & Rubber Company

Circle 6 on Reader Service Card

6

Circle 7 on Reader Service Card ➤  
**CONSTRUCTION METHODS**

# WHERE ACCURACY MEANS MONEY!

HERE'S a high bridge job! Men on the structure! Prestressed beams to handle!—A typical situation, where anything *short* of perfection in operation and control is not enough. On a job like this proper performance of your cranes means money.

Northwest brings you the finest combination of crane operating advantages. The operator has smooth, dependable booming guaranteed by the rugged Northwest Independent High Speed Boom Hoist. In his hand he has the true "feel" of his load. He knows what the hook is doing! With the Northwest Feather-Touch Clutch Control, power does the work.

And the Swing—important with high booms. Uniform Pressure Swing Clutches, as on all Northwests! He can move that boom tip smoothly and accurately without jerk or jar.

He can have power-lowering which is really power lowering with safety not a make shift. He can have a third drum, sectional jibs for rapid variation of length as required, pin or flanged type booms, block and skid steering or Northwest differential type steering and many other features that make crane work smoother and faster.

These features combine with the many other Northwest advantages that enable Northwests to do a better, safer job on a wider variety of work in less time and *at lower cost*.

There is a lot more to tell you. Let a Northwest man give you the full story.

**NORTHWEST ENGINEERING COMPANY**  
1503 Field Bldg. • 135 South La Salle Street • Chicago 3, Illinois

C-95-23-LC

**NORTHWEST**

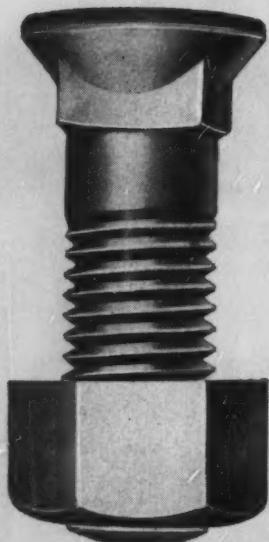
CRANES • SHOVELS • DRAGLINES  
PULLSHOVELS • TRUCK CRANES

Crane  
Co., Inc.  
Chicago  
Illinois

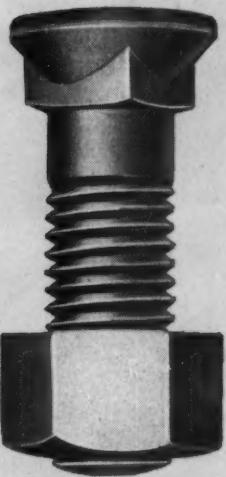
# NEW PACAL

*longer lasting*

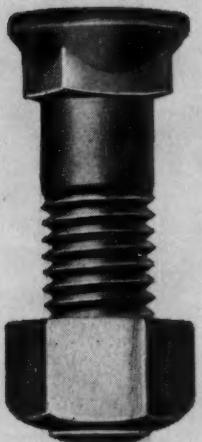
1 INCH



5/8 INCH



3/4 INCH



1 1/2" to 3 1/4" x 8" Pacal X-Tra Edge Grader  
Blade shown here lasts up to six times  
longer than other blades. Also stocked in  
5 1/8" to 7 1/8" x 8" heavy duty section.



## PAPER-CALMENSON

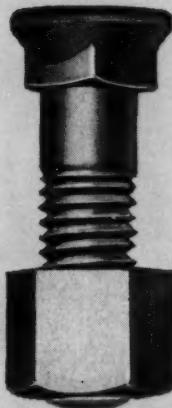
County Rd. B and Walnut Street adjoining Highway 36, St. Paul 13, Minn.

# PLOW BOLT

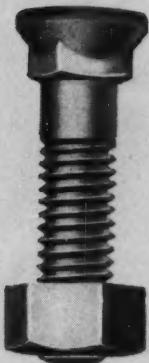
*stronger*

*NOW —  $\frac{1}{16}$ " extra head thickness increases wear up to 3 times longer than other plow bolts*

$\frac{5}{8}$  INCH



$\frac{1}{2}$  INCH



Double heat treated for high tensile strength — new heavier head for longer wear.

A grader operator from Winnipeg, Canada says this about the improved heavier head Pacal heat treated Plow Bolt: "After 280 hours, the bolts have shown no signs of wear". You can get this type of service for your equipment too! Each Pacal bolt is quality controlled to conform with the highest grade specified by S.A.E. — more than 150,000 psi tensile strength.

Pacal heat treated plow bolts do not stretch and thereby reduce blade breakage. This bolt has full square corners on the shank that prevent the head from turning. The popular  $\frac{5}{8}$ " bolt is furnished with a high hex nut. This nut is 30% thicker developing the high strength of the Pacal plow bolts. Pacal Plow Bolts are available in  $\frac{1}{2}$ " to 1" diameters and all lengths. Prompt shipments are made from stock.

and COMPANY

CIRCULAR B-82

Phone Midway 6-9456

Branches: Duluth, Minn., Billings, Mont.

# Mobil® Construction Project Study....



**Dotted line** represents the mountain profile before UPK removed over one million cubic yards of earth for the relocation of Glen Oaks Boulevard and construction of Freeway section. For this cut-and-haul operation, UPK used DW-20 Scraper as well as D-8 and D-9 Caterpillars pushing onto a belt loader. Euclid and 10 wheel bottom dump jobs were used for the haul. Note drainage channel between rough-graded Freeway (Right) and completed Glen Oaks Boulevard (Left). (Below, left) 227,000 tons

of material for the 8" sub-base and 2" untreated base were obtained from an alluvial deposit uncovered at the base of mountain cut. A portable crusher crushed rock to 1½" and separated sand. (Below, right) 147,000 tons of selected base materials were obtained from nearby foot-hill containing a massive outcrop of decomposed granite. Dozers ripped rock from crown of hill, bladed it over the side, and fed it into another portable crusher for reduction to specification size, 2½" maximum to fines.



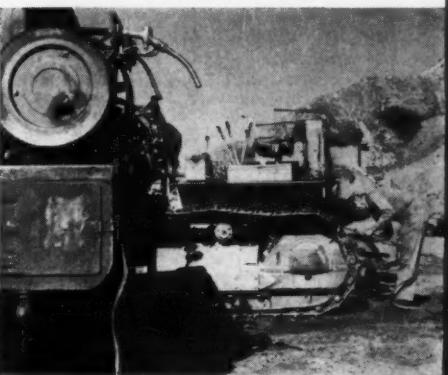
Knowing how one contractor meets the demands of time, efficiency, profit, may help you in your next job.



**UPK operations are highly mechanized** . . . use specialized equipment. A Gurries Road Builder is employed to automatically grade base to correct depth and windrow 4" base prior to addition of specified quantity of bulk cement.



**A Pettibone Wood Stabilization Mixer** then moves along the windrow, automatically adding water and mixing the cement with base material. Then the mixture is graded, rolled and treated with asphalt. Then 9 inches of concrete is placed using pavers.



**A large percentage** of UPK equipment repair is done in the field by the day maintenance crew. Preventive maintenance and daily lubrication of all heavy equipment is performed by a second crew that comes on duty at 2:30 PM and works until finished.

## **How UPK builds 4.067 mile freeway section through center of Burbank, California**

**Ukropina, Polich, Kral and John R. Ukropina co-ordinate million yard cut-and-haul operation with on-site manufacture of all road base materials.**

In 1959, UPK won the \$8,340,000 bid to construct a 4.067 mile section of the Golden State Freeway that bisects thickly populated Burbank. In addition to Freeway, bridges, and ramps, the contract called for construction of a 14' by 30' concrete flood-water drainage channel parallel to the Freeway and the relocation of 10,000 feet of Glen Oaks Boulevard, Burbank's main traffic artery.

Blocking the direct course of the Freeway to the north was a mountain foothill which extended a quarter-mile into the right-of-way. Over 1,000,000 cu. yds. of earth was removed and hauled as much as two miles to the southern end of the Freeway where it was used as fill. The mountain cut was made wide enough to permit relocation of section of Glen Oaks Boulevard. Manufacture of base materials, cutting and hauling had to be carefully co-ordinated to allow continuous traffic flow on Glen Oaks Boulevard.

Mobil was the sole supplier of fuels and lubricants. Mobil Engineers assisted UPK in arranging efficient fuel and lubricant storage-and-handling facilities on the site.

## **What you can expect from Mobil on your job**

Mobil can help you meet the demands of time, efficiency and profit. Mobil does this by providing expert assistance in every phase of your operation affected by petroleum products. Mobil gives you the benefit of 1) engineering service, 2) quality products, 3) close relationship with equipment builders, 4) lubricant and application analysis and 5) convenient location of its bulk plants for prompt delivery. For further information about how we can help you in these 5 important areas, write to us.



MOBIL OIL COMPANY, 150 East 42nd Street, New York 17, N.Y.  
Circle 11 on Reader Service Card

# pipe laying with 28,000 pound sections made easy



Placing 28,000-lb., 16-ft. sections for a 72" concrete water main is the daily chore for this 70-ton Lorain crane. The job is 22,000 ft. long and the Lorain averages laying 300 feet of the new line a day.

The ability to get the big jobs done fast, is built into the Lorain-870. Here are some of the reasons.

**Square-tubular-chord boom** that is stronger, lighter weight. Lifts more—farther out.

**Joy-Stick, air-power controls.** Just two levers control all turntable operations. Smooth, accurate. Minimizes operator fatigue, increases cycle speeds.

**Shear-Ball® turntable connection** that acts like a big, sealed ball bearing for smooth, fast swing—but also holds the turntable to the crawler. No maintenance, adjustment or lubrication problems. Ten-year warranty.

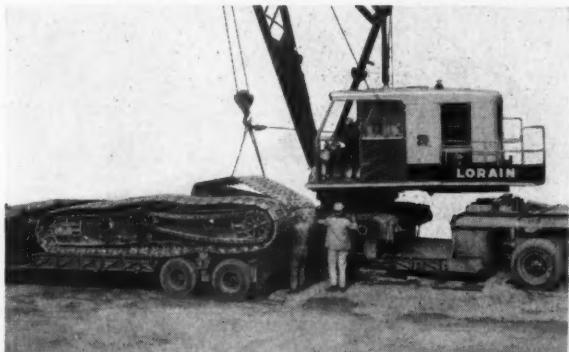
**Crawler mounting** is long, wide, heavy with all propelling, steering and tread-travel locking mechanisms enclosed in a constant oil bath. Air controls for all crawler operations.

And:

**Removable side frames** make this big crane readily transportable by truck or rail car. Here is a truly practical solution to this problem.

The Lorain-870 is available as a 70-ton crane, or as a clamshell or dragline. Would you like more information? Just see your nearby Lorain distributor or write for descriptive bulletin.

**THE THEW SHOVEL COMPANY, LORAIN, OHIO**



Faster, simpler, easier side frame removal

Telescopic axles slide out of the side frames and are retracted back into the car body. The horizontal propelling shaft is separated by a jaw clutch so the side frames—with treads and drive chains intact—are simply lifted away as a unit and placed on rail car or separate lowboy. Reassembly is equally fast and simple.

# LORAIN®

DOES MORE  
FASTER • FOR LESS

PLANTS in Lorain and Elyria, Ohio.

PRODUCTS—Power shovels, cranes, draglines, clamshells, and hoes on crawlers from  $\frac{1}{2}$ - to 2½-yard capacity. Cranes from 7 to 80 tons . . . on crawlers, and as rubber tire Moto-Cranes, and Self-Propelled Cranes • Rubber tire front-end Moto-Loaders in 6,000-lb., 7,000-lb., and 9,000-lb. operating capacities.

OUTLETS—Lorain products sold and serviced by 249 distributor outlets throughout the world.

# **Construction News From Washington**

**Washington, D.C.  
July, 1961**

## **Congress Won't Revise Tax Laws This Year**

The Kennedy Administration's plan to give industry a \$1.7-billion tax break to encourage spending on new industrial plant and equipment has run into opposition that will block Congressional action this year.

On the surface this appears to be a blow to the construction industry. But the setback may result in more beneficial treatment of contractors who have long been hoping that Washington will adopt more realistic equipment depreciation practices.

The Administration's controversial proposal would have cut the annual tax bill of business enterprises up to 30% by allowing a tax credit based on 15% of the amount a company spends over and above its depreciation allowances. Companies not able to take advantage of this provision would be allowed 6% of the amount by which their spending exceed 50% of their depreciation account; and small firms would get a flat 10% credit on their spending up to \$5000.

But the complicated scheme produced almost solid opposition from the business firms that testified before Congress during hearings. As a result, Congress will make up its own mind.

The guess is that a 7% across-the-board credit on amounts spent on new plant and equipment is a likely substitute for the Treasury's complicated plan. This would cost the federal government about the same amount in reduced revenues as the Administration scheme—\$1.7 billion.

The other parts of the Administration's tax revision package—designed to raise enough revenue to offset the \$1.7-billion tax loss—are in even more trouble. Congress is going to write its own ticket, and reject many of the Administration's recommendations.

For instance, the Treasury wants U.S. owners of overseas subsidiaries to pay taxes on income earned by the subsidiaries as profits as earned, even though the earnings are not returned to the U.S. The rule now is what it has been ever since the income tax was adopted: the tax isn't paid until earnings are received.

Construction industry representatives opposing this proposal include the Associated General Contractors, the National Constructors Association, and the Construction Industry International Committee—a new group of 60 engineering and construction companies. Spokesmen declared that it was necessary for U.S. firms to organize foreign subsidiaries to compete with foreign firms, who benefit from many competitive advantages given them by their own governments.

The construction officials also opposed the proposal to eliminate the provision in the law that gives an income tax exemption to employees who live overseas 17 out of 18 months.

*continued on next page*

---

**Construction News from Washington...continued**

---

Congress isn't likely to adopt the Administration's proposals for current taxation of overseas earnings, but may move to take some of the advantages out of operating from tax-haven countries, such as Switzerland, that permit many companies to escape taxation altogether, or to pay only nominal rates.

### **Congress Approves the Highway Bill**

Congress completed action on legislation providing more than \$9 billion in new revenue over the next 10 yr for the federal-aid highway program.

This will make possible completion of the Interstate System on schedule in 1972 and raise the federal contribution to \$37 billion.

The first increase will be reflected in apportionments to be made this month for the fiscal year starting July 1, 1962. The allotment will go up from \$2.2 to \$2.4 billion. The bill also contains funds for an increase in authorizations for primary, secondary and urban roads. But legislation to permit the spending of this money will not be acted upon until next year.

The new revenue will permit the present spending level of \$925 million annually to be increased by \$25 million every 2 yr beginning in 1964 until the \$1-billion level is reached and maintained.

Higher truck taxes, a continuation of the federal gas tax at four cents a gallon, and the availability of more money from the general treasury will provide the new highway funds.

### **Kennedy Considers Building Automated Road**

The Kennedy Administration is considering and probably will approve a recommendation that federal funds be used to underwrite an experimental highway to handle electronically controlled traffic.

An electronic control system would be built into the highway to provide automatic guidance for vehicles—piloting them along at fixed speeds and intervals.

The potentialities of the electronic highway have been explored by a special planning group advising the Administration on transportation policy. The group, headed by Wilfred Owen, a transportation economist and a senior staff member of the Brookings Institution, has advised the White House, the Budget Bureau and the Commerce Dept. that automatic highway traffic control is technologically feasible. A number of firms have done considerable research and development in this field.

The group is recommending that a specific 100-mi stretch on the new Interstate System be selected for the experiment in traffic control automation. They suggest that a six-lane highway be built between two major cities, with the experiment to be tried on one lane of the highway in each direction, leaving the remaining four free for conventional driving.

The Kennedy Administration very likely will agree to the experiment. At least 2 yr would elapse before the electronic highway could go into operation.

The advisory group also will propose that as a second-phase undertaking the Administration consider a similar experiment on a 10-mile stretch of expressway within a city.



# Q: What do Goodyear Earthmover Rims have that no others have?

# A: MORE times FOUR

## 1. MORE rims on the job:

More tons are hauled on—more earth-moving equipment rides on Goodyear rims than on any other kind. Result: You reap the benefits of the widest, soundest experience in rim design, manufacture and use.

## 2. MORE kinds of rims:

Maximum rim performance stems from proper specification. Goodyear makes the *only complete line* of earthmover rims. Result: The choice that permits you to get exactly the right rim for the job.

What better reasons for choosing Goodyear as your rim supplier? Only these: The desire and ability to design and build any rim that may be needed for tomorrow's earth-moving equipment. No matter what your rim needs or plans, you'll find it pays to call on Goodyear. See your local rim distributor, or write: Goodyear, Metal Products Division, Akron 16, Ohio.

## 3. MORE rim engineering help:

Goodyear has more engineers designing and selling rims than any other company. And they know tires, too. Result: The help you need in choosing the right rim for top performance—longer tire life.

## 4. MORE rim "firsts":

The first *true* earthmover rim, the first 5° rim, the first tubeless rim—in fact, every major earthmover rim advance was made by Goodyear. Result: The very latest in rim design and manufacture at work, for you.



Lots of good things come from

# GOOD YEAR

Circle 15 on Reader Service Card

# LUBE LOGIC

## New tips for

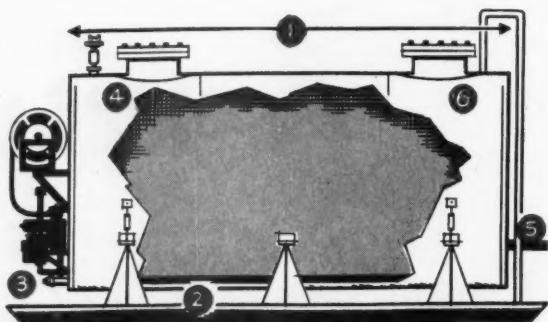
### Don't let storage tank contaminate gasoline

One of the basic essentials of good equipment performance is clean fuel; and the best way to make sure the fuel you use is as clean as the fuel you buy is to keep your own storage facilities up to snuff.

What does it take to make the ideal gasoline storage tank? Here are some of the specifics that Texaco engineers have found to be most important.

#### The ideal gasoline storage tank has:

1. Plenty of room. Every time you fill a tank you stir up the sediment at the bottom. The bigger the tank, the less it has to be refilled, and the longer the sediment stays settled on the bottom.
2. Welded construction.
3. A 1½" drain valve, located at the lowest point.



4. A large hand hole plate or manhole, to make cleaning easier.
5. A suction line to the gasoline pump located several inches above the tank bottom, to avoid drawing out the sediment and condensate.
6. A fine-mesh strainer over the filler opening.

### Four tips to keep hydraulic oil clean in storage and handling

Even the best maintenance techniques won't keep your hydraulic equipment on the move if you don't keep the oil clean while it's in storage and while it's being put into the machine. Here are four simple precautions that will assure you of getting nothing but clean, clear oil in the hydraulic system:



1. Store the drums on their sides, indoors if possible, but in any event under some sort of shelter.



2. Before you open a drum, clean the top so that no dirt or water can fall into the oil.



3. Make sure that you use only *clean* hose and containers in transferring the oil from the drum to the equipment.



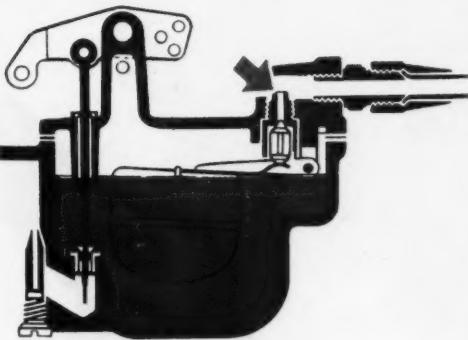
4. Filter the oil as it enters the reservoir on the machine. If the fill pipe on the equipment doesn't have a filter, use a funnel fitted with a 200-mesh screen.



### Protect diesel fuel injector with periodic tank drains

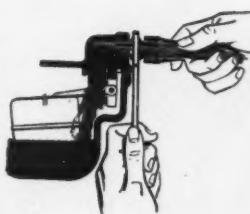
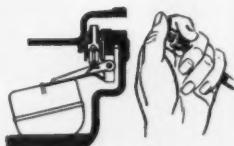
Dirt and water in diesel fuel can ruin a fuel injector in no time. Even if you keep the fuel clean during storage, there's still a good chance that temperature changes will create enough condensation in the fuel tank on your rig to start rusting in the injectors. Several operators have pretty well solved this problem by partially draining the fuel tank once or twice a week. Simply draw off about a gallon of fluid through the drain valve at the bottom of the fuel tank. You lose some fuel this way, but you also get the accumulated water and other contaminants clear out of the fuel system. The cost of the fuel you drain off is a small loss compared to the repair bills you save on the fuel injectors.

# more efficient maintenance

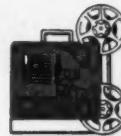


## Quick cure for carburetor flooding

Repeated stalling and hard restarting is often caused by a tiny particle of grit, which lodges under the carburetor float needle valve, lets too much gasoline into the carburetor and causes flooding. You can often solve the problem with the following routine: disconnect the fuel line at the carburetor and plug it with a cork, a pencil or anything else that will fit. Then run the engine until you've used up all the fuel in the carburetor. Reconnect the fuel line, crank the engine, and the rush of gasoline into the empty carburetor will often flush the foreign matter out of the needle valve seat. If you have a friend but no cork, have the friend start the engine while you plug the disconnected line with your thumb. Same difference.



## TEXACO PRESENTS THREE NEW FILMS TO HELP BOOST YOUR PROFITS



**1. PLAN FOR PROFIT**—Texaco's newest color-and-sound movie. Dramatizes the major savings you can make with the proper investment of less than 1% of your total budget—the amount you spend on lubricants. Film features latest lubrication methods and equipment on a number of contracting projects, demonstrating the Texaco Simplified Lubrication Plan in action.



**2. FUNDAMENTALS OF LUBRICATION**—a brand new Texaco color slide film. A clear, concise once-over that defines technical terms like "viscosity" and explains specifically what lubrication is and what it does. This down-to-earth discussion will give the lubrication man a new understanding of the importance of lubrication, and a fresh interest in his work. It's supplemented with a manual that covers the same ground in greater detail.



**3. LUBRICATION OF EARTHMOVING EQUIPMENT**—a new slide film, in color. A concise, easy-to-understand analysis of proper lubrication of engines, wheel bearings, steering, track rollers, crawler treads, hydraulic equipment, wire rope, open and enclosed gears. Supplemented with a manual that covers the whole field of earthmoving equipment lubrication in greater detail.

FOR AN EARLY SHOWING of any one of these films—or all of them—contact your Texaco Contractor Representative now.

## TEXACO LUBRICATION ENGINEERS

Every month or so we'll bring you a batch of "sleepers," little angles, so easy to overlook, where big savings in money and time can be made. If Lube Logic doesn't solve your problem, call your local Texaco Lubrication Engineer. Anytime, all the time, he's your best source of money-saving lubrication ideas. Don't forget that "Lubrication is a major factor in cost control." Texaco Inc., 135 East 42nd Street, New York 17, N. Y.

Tune In: Texaco Huntley-Brinkley Report, Mon. Through Fri.-NBC-TV

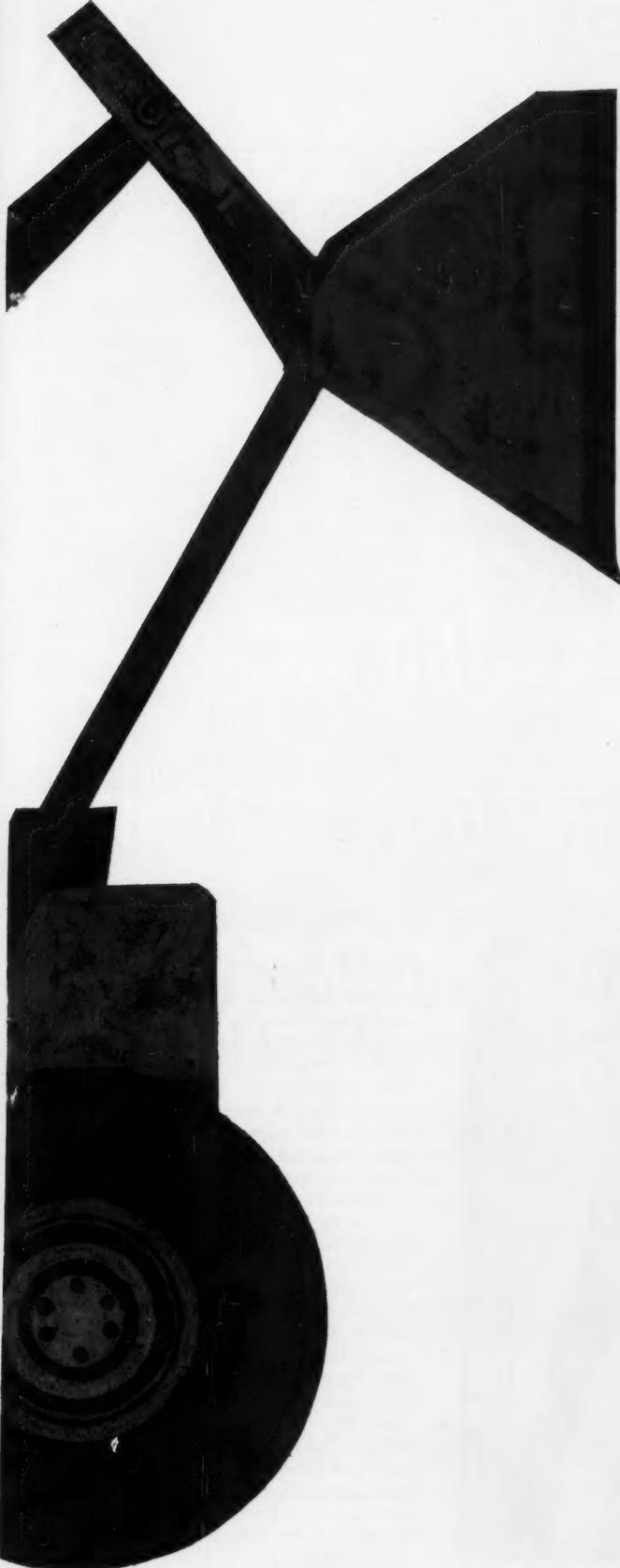
**TEXACO**

Throughout the United States



Canada • Latin America • West Africa





# STANDARDIZE ON CUMMINS

**ONLY CUMMINS OFFERS 45 CONSTRUCTION-PROVED  
DIESELS FROM 70 TO 700 HORSEPOWER!**

Across the country, men in all phases of construction work are standardizing on Cummins Diesels. Why? For three very important reasons:

*Only Cummins offers the complete range of diesel power needed for today's construction requirements.* You can specify 4, 6, 8 and 12 cylinder models; naturally aspirated, supercharged or turbocharged. Match your power needs exactly, no costly under-powering . . . no wasteful overpowering.

*Cummins service is readily available—anywhere!* Prompt, expert help at the jobsite keeps your Cummins operating profitably. Parts and factory-trained service experts are available 24 hours a day at service points across the nation.

*Standardization substantially cuts operating costs.* Cummins Diesels are designed to permit maximum parts interchangeability. By standardizing on Cummins, you minimize parts inventory, increase the efficiency of your service work and reduce labor costs. You increase availability . . . increase profits.

Cummins power is available in more than 550 models of construction machines. Contact your equipment dealer or Cummins Distributor for details.  
**Cummins Engine Company, Inc., Columbus, Indiana.**

**CUMMINS**

**70HP to  
700HP**

*Circle 19 on Reader Service Card*

JULY, 1961

11



... and for

## NEARBY SERVICE on Black & Decker

**tools.** Black & Decker maintains 50 factory service branches plus authorized service stations to give your B&D tools the attention mechanical products need periodically. Keep your B&D tools in top condition, on the job all the time.

Only factory parts and factory-approved methods are used. Fast service and reasonable cost, always.



**SWIFTY SERVICE** says  
be sure to ask about:

**FREE TOOL INSPECTION**  
no cost,  
no obligation.

**STANDARD B&D  
GUARANTEE** after  
completion of all  
recommended  
repair work.

You'll find the location of the nearest B&D repair facility in the Yellow Pages under "Tools-Electric," or write for address to: THE BLACK & DECKER MFG. CO., Dept. 2207-S, Towson 4, Md.

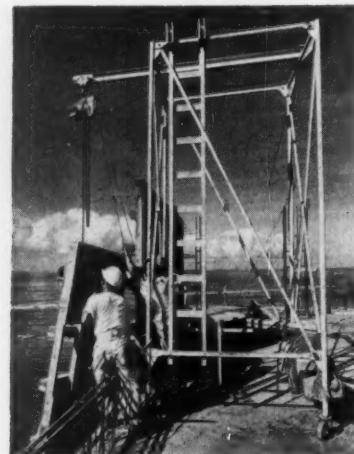


**Black & Decker**

Quality Tool Service

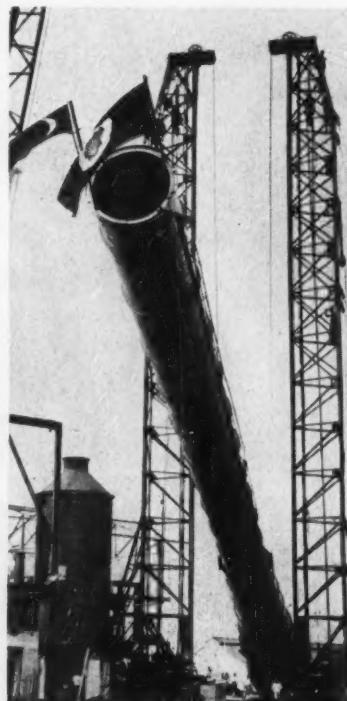
Circle 20 on Reader Service Card

## Job Talk...



### Ladder, Frame Assist Form Handling

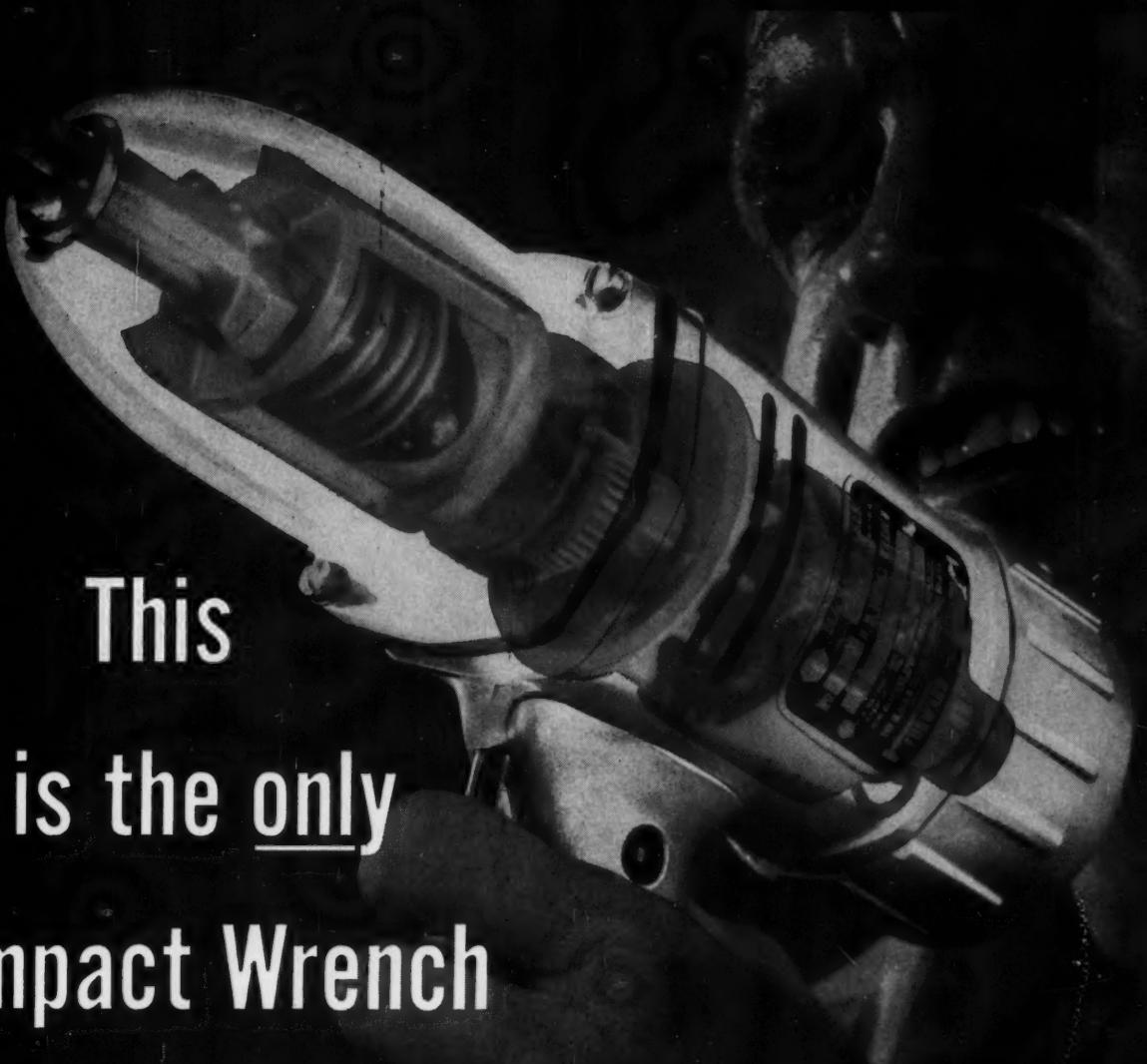
An aluminum safety ladder (*left*) and a steel frame (*right*) were especially designed for handling forms on a Honolulu apartment project being built by Haas & Haynie. The 12-ft-high, 50-lb ladder completely encloses the man standing on it with an aluminum frame. The ladder is fastened to the building by hooks and tie ropes and is used when breaking loose the outside forms. Once the forms are unlocked, the 14-ft-high steel frame takes over. Built to handle up to 1,000 lb, it has an attached electric chain hoist and concrete counterweights that are used to lift the forms up to the next story.



### Pile-Driving Leads Hoist Tower, Stacks

During the building of a refinery near Singapore, the Lummus construction team was faced with the problem of erecting a 100-ft crude tower and two 200-ft heater stacks. The tower weighed 50 tons and the two stacks 50 and 66 tons, respectively. Lummus found two pile leads in the area to use as gin poles, but because each one was rated at only 20 tons, they had to redesign them to carry 33 tons. This was done by beefing up the leads with channels, adding bracing to the upper sections, and guying the leads in place. Also, the lifting heads were reinforced and sheaves were added to give an almost straight pull to the load line. The load line was looped around the lifting lug so that it was free to move on the lug. It was attached directly to bridle blocks guided by two sets of three sheaves on the pile-driving leads' lifting heads.

(continued on page 24)



# This is the only Impact Wrench

that has the GUTS to prove  
its maintenance costs peanuts!

Take an Impact Wrench that's built with extra ruggedness clear through. Take a Factory Service Branch network that keeps accurate repair records. Result: *proof positive* that Black & Decker Impact Wrenches have a phenomenally low maintenance cost.

No other Impact Wrench approaches the Black & Decker because no other Impact Wrench can match the power, speed and maintenance-free construction of a Black & Decker. From drive spindle to reversing ring, every part has been designed to eliminate breakdown problems.

Wherever a bolt, nut, wood or lag screw must be spun, or drilling and tapping done—in machinery moving, installation work, general maintenance or production—a B&D Impact Wrench will do the job faster, with less fatigue, and at lower cost. Mail the coupon or call your B&D distributor for a demonstration. *For Sales or Service, look in the Yellow Pages under*



**Black & Decker®**

CUTS MAN-HOURS TO MINUTES

Circle 21 on Reader Service Card

THE BLACK & DECKER MFG. CO., Dept. 2207  
Towson 4, Md. (In Canada: Brockville, Ont.)

Please arrange a demonstration of a B&D Impact Wrench.  
 Please send additional information on

Name..... Title.....

Company.....

Address.....

City..... Zone..... State.....



Drills



Hammers



Scruguns®



Bench Grinders



# B.F.Goodrich helps unlock Ohio River traffic jam

**WITH TIRES, HOSE AND OTHER  
PRODUCTS, B.F.GOODRICH SPEEDS  
CONSTRUCTION OF NEW  
NAVIGATION SYSTEM**

Time was when traffic was slowed by 4 separate locks in a 95-mile stretch of the Ohio River. But the Capt. Anthony Meldahl Locks and Dam will flood them. This project is part of a modern navigation system that will

reduce 13 locks and dams to 3, and lockage time from 19½ hours to 1½ hours.

Groves Ventures Company of Minneapolis, Minnesota, a joint venture sponsored by S. J. Groves & Sons Co., is on the job with an army of B.F.Goodrich tires and always-available BFG tire service. Rock Service tires, for example, haul 33-ton loads of concrete from batch plant to lock forms over rock-strewn roads. No problem for these BFG giants, though. They're available in new

**33 TONS OF CONCRETE** leave batch plant (photo at left) bound for lock pouring area (below). Locks will be 110' x 1200', will require over 670-thousand cubic yards of concrete, will cost over \$25-million. B.F.Goodrich Rock Service and Rock Rib tires haul concrete 16 hours a day, 6 days a week down 2 long grades into the cofferdam excavation. Roads are covered with crushed rock and gravel, and often with 6" of water. Yet BFG tires give exceptional service, Groves Ventures reports.



**B.F.GOODRICH ON-THE-JOB TIRE SERVICE** keeps Groves Ventures equipment rolling on lock project near Chilo, Ohio—keeps tire costs at a minimum. The BFG Servicemobile and repair shop are manned by tire experts, whose workmanship prompts Project Manager W. J. Green to write, "B.F.Goodrich service and repair facilities have done an excellent job of covering our needs."

**NO STING IN THIS STEAM HOSE**, used to cure concrete at Capt. Anthony Meldahl locks. It's Burstproof hose, made of BFG-developed heat-resistant rubber with layers of braided wire reinforcement. It can't explode. Supplying Groves Ventures with hose, belting and protective clothing—as well as tires—is all part of the BFG Unified Contractor Program. Contractors benefit from lower costs and better rubber products' service with this new BFG program.



#### Cut Protected compound that defies tire-killing rock.

B.F.Goodrich Flex-Rite Nylon cord construction withstands double the impact of ordinary materials, resists heat blowouts and flex breaks. Result: more retreadable tires. No wonder Groves Ventures specifies BFG tires.

You'll find B.F.Goodrich hose, protective clothing and other products at work here—all part of the BFG Unified Contractor Program that helps contractors cut costs and get better service from rubber products. Call your nearby B.F.Goodrich Smileage dealer (listed under Tires in the Yellow Pages). He has the know-how to help make your next contract more profitable. *The B.F.Goodrich Company, Akron 18, Ohio.*

**Specify B.F.Goodrich Tubeless or tube-type tires  
when ordering new equipment**

**B.F.Goodrich**

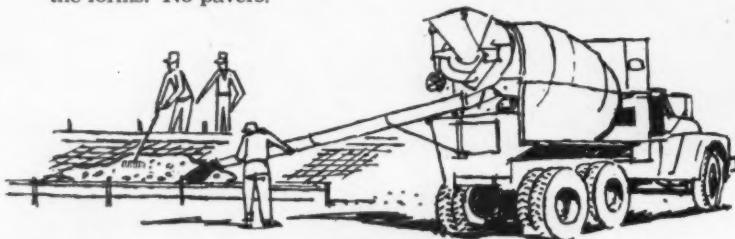


**Pouring Ready Mixed up to  
252 Yards per Hour  
for Highway Construction with a**

## BUTLER HP-85 PLANT

SOMEWHERE IN U.S.A. At the owner's request we won't identify the job where a BUTLER HP-85 is delivering record-breaking production... but the facts are swear-on-a-Bible true.

It's a big paving job. Transit mix trucks pour directly into the forms. No pavers.



The owner guaranteed the contractor 150 yards per hour. Actually, the HP-85 is producing 252 yards, hour-in and hour-out. It even surprises us!

Of course, this takes smart, alert management, top-flight co-ordination of trucks, perfect materials flow and a crew with a will. Without these it couldn't be done. But here's the point: management needs a BUTLER HP-85 to attain such a record.

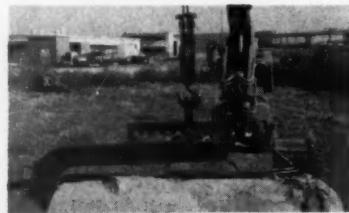
Plant facts: a fully automated Portable HP-85 with a 100 yard cement bin and a 422 bbls. per hour cement elevator. Aggregates are fed with a 24 inch belt conveyor. Trucks carry 6 yards each.

Moral: succeed with a BUTLER HP-85 Portable Plant plus your good management.

## BUTLER BIN COMPANY

949 Blackstone Avenue • Waukesha, Wisconsin  
Circle 24 on Reader Service Card

### JOB TALK . . . continued



#### Adjustable Hook Holds Concrete Pipe Section

About \$15 worth of iron, another \$15 worth of welding rods, and 10 man-hr of labor went into making this adjustable hook for handling concrete pipe. Designed by U. L. Moss of the Texas Highway Dept., the device handles up to 1,800-lb, 84-in. pipe and is so well-balanced that one man with a hoist or dragline can operate it. The hook is fabricated from hollow, welded,  $\frac{1}{4}$ -in. boiler plate with a  $1\frac{1}{4}$ -in.-thick slotted steel carriage. The clevis is made of  $\frac{1}{2}$ -in. by 2-in. plate with  $2\frac{1}{4}$ -in. cotter pins. Overall weight is 150 lb. The slotted mechanism can be adjusted from the machine operator's seat.



#### Stethoscope Pinpoints Vehicle Noise Ailments

A stethoscope, if properly used, can aid in detecting those strange sounds that most vehicles periodically emit. But most stethoscopes are so sensitive that when one is used for checking noises, sounds from all over the vehicle's body are apt to be picked up and heard simultaneously. To isolate a specific noise, the examiner should hold the rubber tube of the stethoscope between the thumb and forefinger and gradually press the sides together. This reduces noise sensitivity so that only sounds at the point of contact still come through.

# What does **CARSET** really mean?

Sure it's a trademark for an Ingersoll-Rand rock bit with tungsten carbide cutting edges. But...it also means years of know-how...the experience born of thousands of trials...and frustrations...and hundreds of thousands of dollars spent in searching and perfecting.

It also means selection...and rejection of more materials and shapes and sizes and what have you...than we care to talk about.

It means steadfastness, against experts from without...and from within. It also means criticism from the bargain hunters and die-hards with the do-it-yourself kits.

In short, it means we will continue to give you the best bit that know-how and money can build. If you have not already standardized on the bit that is backed by experience and everything you need for drilling rock...do it now.



A CONSTANT STANDARD  
OF QUALITY  
IN EVERYTHING YOU NEED  
FOR DRILLING ROCK



**Ingersoll-Rand.**

227A5 11 Broadway, New York 4, N.Y.

*Ripping Out Mountains...*

*Putting Up Cities...*

*Laying Down Highways...*



# it's all in a day's work

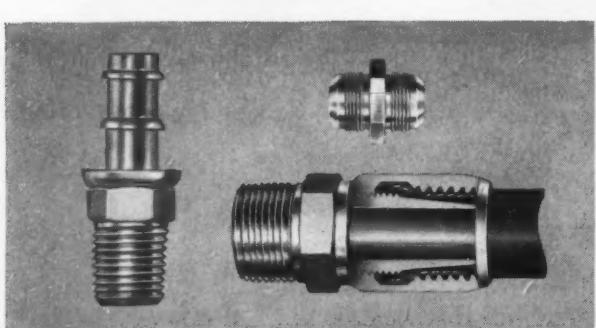
## Centralized Lubrication Systems

A job pays off when the "big stuff" works at top efficiency and on a full-time basis. Alemite Centralized Lubrication Systems are especially designed and built in to keep your shovels, scrapers, dozers and other big equipment working smoothly, more efficiently and longer. Equipment is lubricated automatically right on the job—not miles away. Alemite can plan and "tailor make"

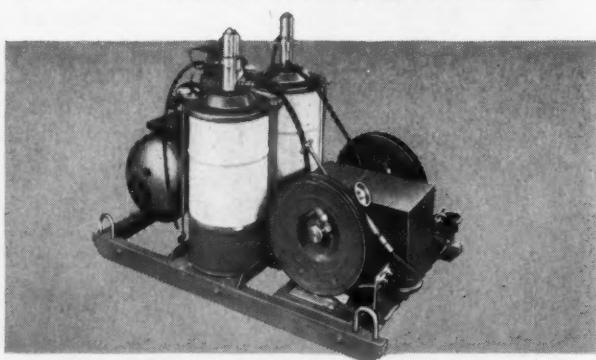
an automatic centralized lubrication system to meet your toughest, most specific needs.

Alemite Centralized Lubrication Systems protect your equipment with pre-determined amounts of lubricants from one central point to every point where it's needed . . . quickly, safely, automatically. There's no waste. Equipment life is extended, downtime sharply reduced.

### *Other Alemite products to keep your job moving smoothly, profitably!*

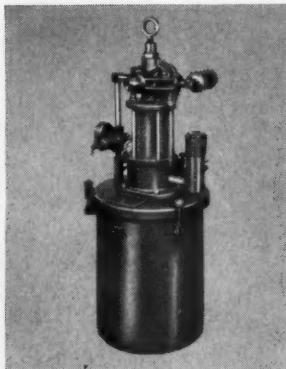


**Alemite Surgepruf Hose and Couplings!** Field assembly is fast and easy, without special tools. Alemite's full line of couplings and hose provide a vast assortment of high pressure, medium high pressure and low pressure hose with reusable couplings and adapters. This outstanding line of equipment is readily available at industrial distributors everywhere.



**Alemite Portable Service Stations!** With a wide range of readily available components to choose from, Alemite can custom-tailor a portable service station to fit your exact cost and performance requirements. Truck or skid mounted, Alemite's portable stations move easily, quickly wherever they are needed. They provide maximum efficiency and economy on every job!





Alemite "Hydrastat" Airless Paint Spray Units! Ideal for painting heavy-duty equipment right on the job . . . plus a wide range of other applications. Can be moved from job to job in minutes by overhead hoist.



**ALEMITE**  
DIVISION  
**STEWART-WARNER**  
CORPORATION

Dept. R-71, 1850 Diversey Parkway, Chicago 14, Illinois

In Canada: Stewart-Warner Corporation of Canada, Ltd.,  
Belleville, Ontario

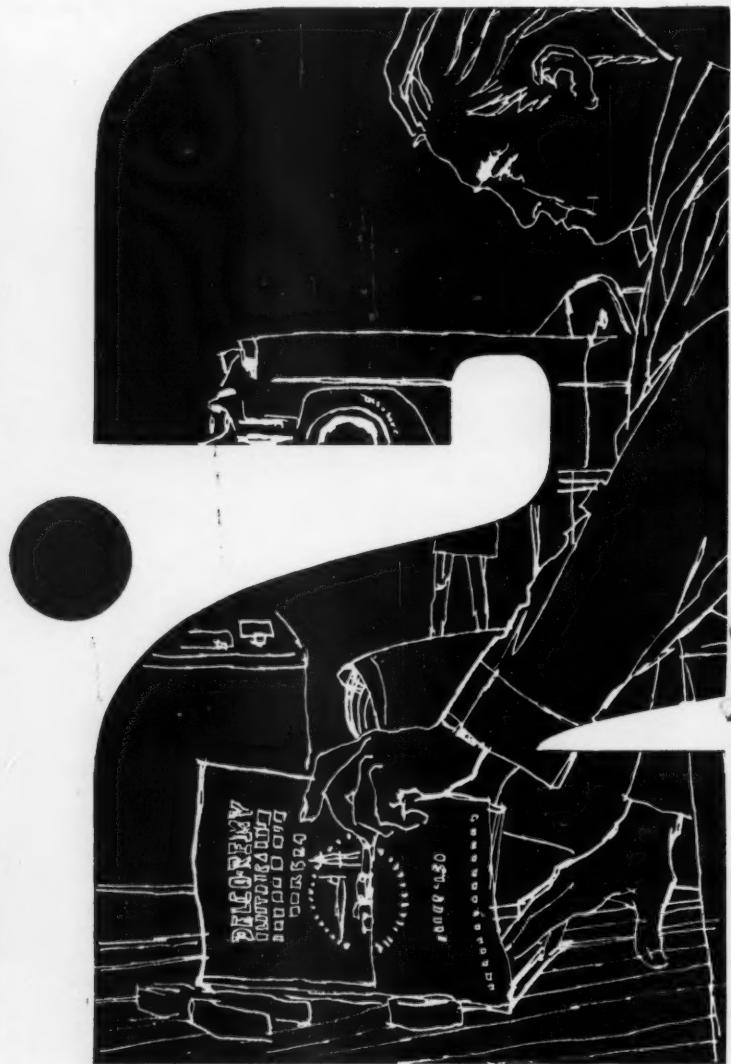
Circle 27 on Reader Service Card

# How United Motors Service helps you get better fleet performance from your Delco-Remy equipment

It's as  
easy as...



HELP FROM 39 UMS ZONE SERVICE  
MANAGERS (see list at right above), providing  
on-the-spot advice and recommendations on  
questions involving Delco-Remy equipment.



HELP FROM DELCO-REMY SERVICE MANUALS that give  
step-by-step analyses of typical maintenance and trouble-shooting  
procedures. Available from UMS distributors, these manuals make  
service faster, easier.

These three easy-to-get Delco-Remy services mean reduced downtime, faster maintenance by your shop personnel, and peak performance for your fleet vehicles. How do you get these valuable Delco-Remy service helps?

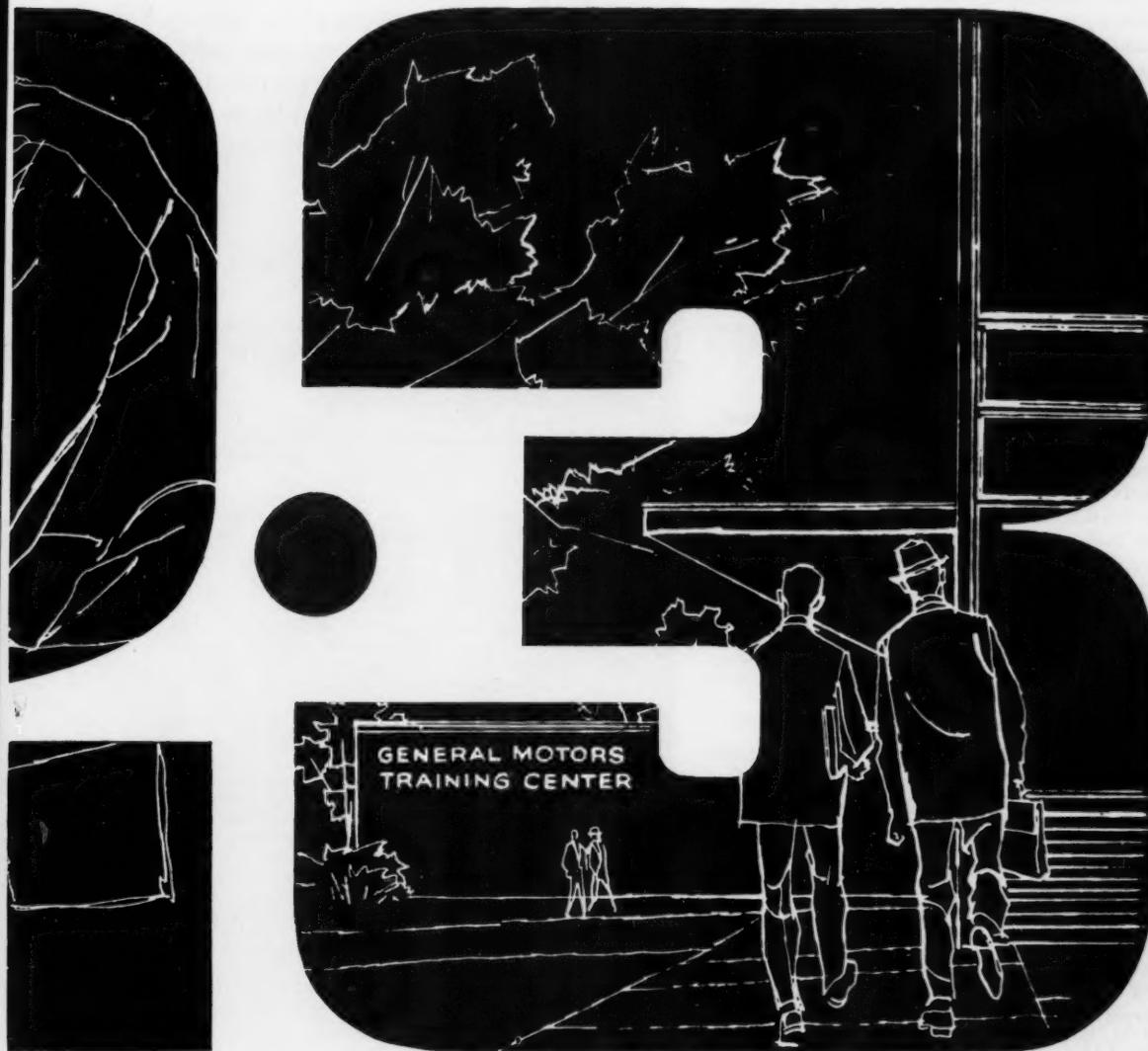
Just ask.

Talk to your local United Motors Service distributor. He'll see that you get the help you need—when you need it! He's also the man to see when you need Delco-Remy original equipment replacement parts. Look over these Delco-Remy services and decide what you need. Then, just ask!

UMS Zone Offices in Atlanta • Boston • Chicago • Detroit • Los Angeles • Minneapolis • Newark • San Francisco • Seattle • Kansas City • Dallas • Cleveland • Denver • Indianapolis • Buffalo • Philadelphia • St. Louis • New Orleans • Pittsburgh • Omaha • Memphis • Cincinnati • Charlotte • Jacksonville • Houston • Milwaukee • Washington, D. C. • El Paso • New York



UNITED MOTORS SERVICE • GENERAL MOTORS CORPORATION



**HELP FROM 30 UMS-DELCO-PARTS TRAINING SCHOOLS** at GM Training Centers that give your service personnel detailed up-to-date information on operation, maintenance and trouble-shooting. The tuition-free courses last for one week and there is no charge for books or class materials.

Circle 29 on Reader Service Card

# **Indiana contractor has an 80 year history of highway, bridge and industrial construction**

For over eighty years the name of J. C. O'Connor has been tied to construction in the Midwest. As far back as 1880, the founder of J. C. O'Connor & Sons, Inc. started in the railroad construction business. By 1921, his two sons, M. P. and R. E. O'Connor joined their father in the construction business.

With the O'Connor sons added to the company management, a program of growth and expansion was launched. The company operated with headquarters in Fort Wayne, Indiana. Gradually it expanded to district offices located at LaPorte, Indiana, and Springfield, Illinois. All phases of construction were handled independently by the district offices, and this practice holds today. The company began bidding successfully on highway and concrete paving work. By 1935, their work extended from Indiana and Illinois into Ohio and Michigan. By this time, J. C. O'Connor & Sons, Inc. had reached the \$1 million a year level of construction.

When J. C. O'Connor died in 1932, his sons took over the reins of the company. Under their leadership the company gradually specialized in highways, bridges, airports, railroads, earthmoving and industrial construction. Continued growth and success marked the years the O'Connor sons headed the company, until M. P.'s death in 1955 and R. E.'s retirement in 1956.

## **Company achieves new heights under new management**

Following Robert O'Connor's retirement in 1956, the management and direction of the company was turned over to a new team. J. F. Parker was appointed President, and A. D. Blackburn, Vice President. Prior to their appointments, both served as general superintendents. They have been members of the organization for over 30 years, and have contributed in large measure to its success. Other members of the present management team include Helen M. O'Connor, Treasurer; M. R. Schwartz, Asst. Secretary and Office Manager; and J. J. Bornschein, Asst. Treasurer.

## **\$46 million of work in 5 years**

Sparked by this new management team, J. C. O'Connor & Sons, Inc. has continued to grow and prosper. In the five year period through 1960, they completed \$46 million of construction of which \$11.5 million was completed in 1960. Today, the company concentrates principally on earthmoving and concrete paving which represents over 50% of their total work. About 22% of all this work is in industrial construction.

A significant factor contributing to the success of this contractor is the very comprehensive cost records that are maintained daily. "These save a great deal of time and facilitate more accurate bidding. It's our key to successful bidding," says Mr. Blackburn. Initial cost records are kept in the LaPorte, Indiana office. This facilitates accurate estimating, better control of present jobs and more profitable bidding on future jobs.

## **Expands equipment and capacity**

Equipment and manpower play an important role in the success of the O'Connor firm. Mr. Blackburn is well aware of the need for new, efficient and well-maintained equipment in the company's operation. The heavy equip-

**A. D. Blackburn, vice president and CONSTRUCTION METHODS subscriber for over 30 years says:**

**CONSTRUCTION METHODS** is an outstanding magazine. Its coverage of the industry is exceptional. It is a necessary working tool for our field men in their work. The photo techniques used are very helpful in understanding the subject matter covered. I also read the advertising carefully, too, for helpful ideas. 99

## **J. C. O'Connor Equipment Inventory**

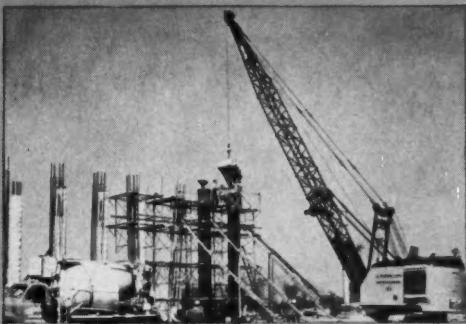
- 32 Cranes & Shovels (Northwest, Koehring, Lorain, Lima)
- 41 Drag, Clam & Grapple Buckets (Page, Owen, Williams, Blaw-Knox, Hendrix)
- 8 Concrete Buckets (Insley)
- 18 Graders (Caterpillar)
- 1 Loader (Euclid)
- 14 Trailor Hauling Units (Euclid)
- 61 Tractors (Caterpillar, Euclid, Michigan, Allis-Chalmers)
- 4 Front End Loaders (Caterpillar)
- 14 Full Type Scrapers (Caterpillar, LeTourneau)
- 25 Self-Propelled Scrapers (Caterpillar, LeTourneau-Westinghouse)
- 18 Rollers (Buffalo-Springfield, Bros, Vibro-Plus, Grace)
- 2 Bulk Cement Tankers
- 6 Grease Trucks (International)
- 42 Flat & Dump Bed Trucks (International, G.M.C., Ford, Chevrolet)
- 4 Truck Tractors (International, Hendrickson)
- 4 Lowboy Trailers (Taibert, Fruehauf)
- 18 Semi & Parts Trailers (Fruehauf, Superior, Highway)
- 11 Mobile Office Trailers (Williams, Mobile Office)
- 27 Pick Up Trucks (G.M.C., Ford, Chevrolet, International)
- 22 Cars & Station Wagons
- 15 Light Plants (Kohler, Master, G.E.)
- 6 Generators (G.E.)
- 6 Pavers (Bros, Koehring)
- 5 Cement Plants (Heitzel, Blaw-Knox)
- 12 Aggregate Plants (Heitzel, Blaw-Knox, Johnson)
- 3 Spreaders (Aggregate) (Jersey, Blaw-Knox)
- 7 Finishers (Blaw-Knox, Koering, Chain-Belt, Flex-Plane)
- 4 Concrete Spreaders (Blaw-Knox)
- 4 Concrete Saws (Eveready, Ottawa)
- 2 Power Sub-Graders (Buckeye)
- 11 Water Trucks (International, G.M.C., Fruehauf)
- 3 Wideners (Apsco)
- 31 Vibrators (Jackson, White, Mall, Master)
- 2 Concrete Pumps (Chain-Belt)
- 27 Water Pumps (Gorman-Rupp, Barnes, Jaeger, Couch, Bros)
- 6 Pile Driving Hammers (Steam & Diesel) (Vulcan, McKernan-Terry)
- 4 Steam Boilers (Bros)
- 2 Power-Packers (Maginniss)
- 14 Welders (Lincoln, Westinghouse)
- 5 Rock Drills (Thor, Gardner-Denver)
- 9 Air Compressors (Gardner-Denver, Chicago-Pneumatic, Worthington)
- 6 Power Heaters (Silent Glow)
- 4 Locomotives (Plymouth, G.E., Diesel)
- 2 Track Shifters (Nordberg)
- 2 Track Power Jacks (Buda)
- 5 Base Stations (Motorola)
- 21 Mobile Radio Units (Motorola)



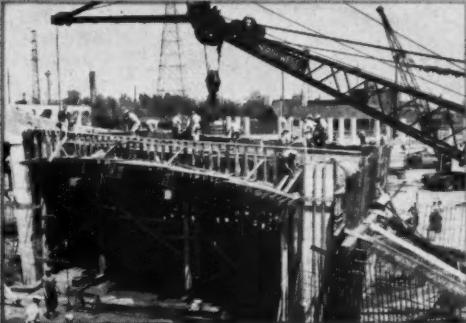
J. F. Parker, President



A. D. Blackburn, Vice President



\$738,000 bridge spanning Gibson R.R. yards between Gary and Hammond, Indiana. 1.7 million lbs structural steel; 651,923 lbs reinforcing steel; 16,725 ft steel piling; 3,394 cu yds concrete.



\$4 million Inland Steel job. Elevated structure and entrance to plant. Crosses 13 main line rail tracks. Lakefront overpass shown above.



\$1.7 million tri-state highway section, E. Gary, Indiana. Grading, drainage, paving. 146,445 cu yds of removal, 790,000 yds grading, 116,000 sq yds of concrete paving.

ment inventory numbers around 677 units valued at \$2.3 million. The company is constantly on the lookout for new and better equipment for replacement and addition to the present inventory. In 1959, for example, \$380,000 of new equipment was purchased — and an additional \$480,000 was purchased in 1960.

And in contrast to the early days, the present work load is handled by 85 permanent employees and up to 550 workers when the company is going at its peak.

#### Rigid purchasing policies prove effective

The purchase of new machinery by the J. C. O'Connor company is based on careful consideration and evaluation of many factors. Here's what Vice President, A. D. Blackburn says:

"Many of our key people influence our final purchasing decision. Before deciding what type and make of equipment to buy, we conduct time studies and have demonstrations. We put our operators on equipment. We consult our superintendents, foremen, master mechanic for their opinions on the operation of equipment. We do not standardize on brands. The opinions of these key people are all important to us in making the final decision to buy. It has proved very successful for us."

Materials purchases also represent a substantial annual investment by this contractor in order to complete over \$11 million of work in a year. Purchases of materials in 1960 came to \$2.2 million. This included 850,000 bbls. of cement, 1,560 tons of steel and 350,000 gallons of gas and oil, plus a wide variety of other materials. And, according to A. D. Blackburn, the company does not necessarily buy the cheapest material. Service and delivery is more important to this contractor.

#### \$625,000 invested in maintenance

An important segment of O'Connor's operation is construction machinery maintenance. Four buildings located in Peru, Indiana are used for this purpose. Twenty men work in a single shift, and sometimes two shifts when the work load requires it. Major overhaul, storage and distribution of equipment to the various jobs is handled at this location.

#### Separate aggregate producing company

O'Connor & Sons has two wholly owned subsidiaries: O'Connor Construction Co. Inc., and Kickapoo Sand & Gravel Corp. The latter company, formed in 1908, operates two aggregate producing plants that turn out 2,500 tons a day. This includes all types of concrete aggregate.

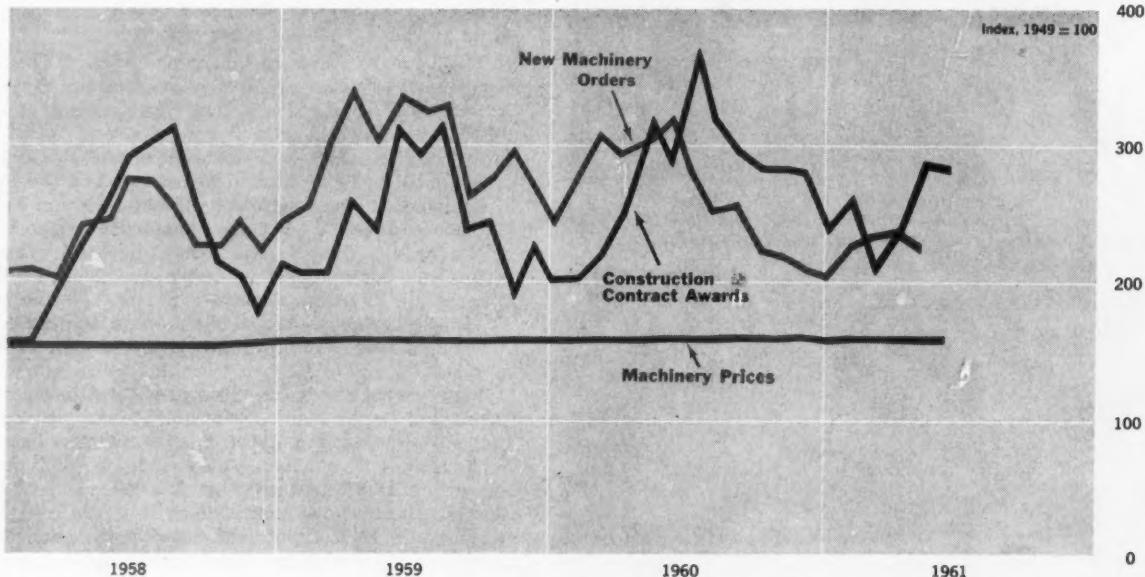
#### Key men look to CONSTRUCTION METHODS

The steady growth and success of this contractor is a tribute to the founder, his sons, and top management group who now head up the company. Knowledge of all elements of their construction business has been a key factor in their success. And many of the key men in executive, management and supervisory capacities at J. C. O'Connor look to the pages of CONSTRUCTION METHODS magazine to keep abreast of the latest developments in construction equipment, techniques and materials. The value of CONSTRUCTION METHODS to construction men is reflected in the words of A. D. Blackburn, Vice president, at the upper left.

**Construction  
Methods** AND EQUIPMENT



# Trends in the Machinery Market . . .



## Price Index

	MAY 1961	MONTH AGO	YEAR AGO	% CHANGE 1960-1961
All Types of Equipment .....	178.3	178.2	175.3	+ 1.7
Cranes; Draglines, Shovels .....	173.9	173.2	173.2	+ 0.4
Shovel, ½ cu yd .....	173.1	173.1	167.9	+ 3.1
Shovel, ¾ cu yd .....	178.8	178.8*	175.4	+ 1.9
Shovel, 1-1½ cu yd .....	191.0	191.0	188.2	+ 1.5
Shovel, 2-2½ cu yd .....	169.1	169.1	170.3	+ 1.6
Shovel, 3-3½ cu yd .....	159.8	159.8	167.8	- 0.7
Shovel, 6 cu yd .....	197.9	197.9	195.0	+ 1.5
Crane, truck mounted .....	165.9	165.9	168.2	- 1.4
Crane, tractor mounted .....	135.1	135.1	135.1	0
Bucket, clam shell .....	162.9	162.9	162.9	0
Bucket, dragline .....	169.3	169.3	169.3	0
Scrapers and Graders .....	166.6	166.6	166.2	+ 0.2
Scraper, 4 wheel, 8-10.5 cu yd .....	155.0	155.0	155.0	0
Scraper, 4 wheel, 12-15 cu yd .....	156.8	156.8	156.8	0
Scraper, 2 wheel, 15-19.5 cu yd (a) .....	126.2	126.2	124.9	+ 1.0
Grader, heavy duty .....	174.1	174.1	173.1	+ 0.6
Grader, light and medium .....	170.9	170.9	171.1	- 0.1
Tractors (non-farm, incl. Industrial) .....	195.7	195.7	191.7	+ 2.1
Wheel type, off-highway (a) .....	129.2	129.2	129.2	0
Crawler type, 50-74 mph .....	205.3	205.3	195.8	+ 4.9
75-99 mph .....	204.8	204.8	201.2	+ 1.7
100-154 mph .....	200.2	200.2	195.3	+ 2.5
155-200 mph .....	208.6	208.6	203.3	+ 2.6
Machinery, Tractor Mounted .....	177.4	177.3	169.5	+ 4.7
Dozer, cable controlled .....	164.8	164.8	154.4	+ 6.7
Dozer, hydraulic controlled .....	201.4	201.4	186.6	+ 7.9
Cable power control unit .....	152.9	152.9	152.9	0
Loader, tractor shovel .....	166.7	166.5	163.2	+ 2.1
Specialized Machinery .....	159.5	159.4*	157.8	+ 1.1
Ditcher .....	153.8	153.8	150.2	+ 2.3
Roller, tandem .....	228.5	228.5	226.4	+ 0.9
Roller, 3 wheel .....	178.7	178.7	178.7	0
Ripper and roto .....	164.5	164.5	156.6	+ 5.0
Dewatering pump, 10 M gph .....	119.9	110.1	111.5	+ 7.5
Dewatering pump, 90 M gph .....	156.3	156.3*	151.5	+ 3.2
Portable Air Compressors .....	183.8	183.8*	167.5	+ 9.7
Contractor's Air Tools .....	190.6	190.6	181.6	+ 4.9
Mixers, Pavers, Spreaders .....	159.9	159.9	161.8	- 1.2
Mixer, portable, 11 cu ft .....	169.6	168.2	166.8	+ 1.7
Mixer, portable, 16 cu ft .....	174.7	172.9	172.7	+ 1.1
Mixer, truck, 6 cu yd .....	131.1	131.1	135.1	+ 3.0
Mixer, paving, 34 cu ft .....	192.9	192.9	196.7	- 1.9
Concrete finisher & spreader .....	198.4	198.4	201.9	- 1.7
Bituminous distributor .....	124.5	124.5	126.2	- 1.3
Bituminous spreader .....	179.4	179.4	179.4	0
Bituminous paver .....	168.6	165.9	165.6	+ 1.8
Off-Highway Trucks, Wagons (b) .....	102.5	102.5	102.5	0
Contractors off-highway truck (b) .....	102.0	102.0	100.3	+ 1.7
Trailer dump wagon (b) .....	106.7	106.7	106.7	0

(a) January, 1955 = 100      (b) January, 1958 = 100      \*Revised  
BLS Primary Market Price Indexes, U. S. Department of Labor, 1947-49 = 100

## Equipment Prices Held Steady In First Five Months

ANOTHER SPRINKLING of increases in list prices of new equipment was reported by the Bureau of Labor Statistics last month, but BLS' over-all price index was virtually unchanged. The May 15 index is only 0.1 point above the April figure.

Since the start of this year, the BLS index has risen 1.3 points, or slightly less than 1%. For the first five months of last year, the index climbed almost twice as much.

Significant increases that showed up last month were a 9% jump in the price of dewatering pumps in the 10M-gph class, a 1.6% climb for bituminous pavers, and slight changes in the prices of portable concrete mixers.

Orders for new equipment placed by distributors dipped in April. The new orders index for construction and mining machinery dropped 4% below March to a value of 233, based on average monthly orders in 1949 as 100. This index is computed by the McGraw-Hill Economics Dept. from reports made by a sampling of the construction and mining equipment industry.

April orders trailed last year by 22%, according to this index, which was below its year-ago value for the 14th consecutive month. The first four months of '61 averaged 20% below last year.

But another index tells a different story. The new orders index for construction machinery alone, recently started by the McGraw-Hill Economics Dept., dropped 9% in April. However, it was 6% higher than a year ago and marked the 9th consecutive month to top the year-ago value. For the first four months, this index ran 15% higher than last year.



*Stack, spot, load, lift, haul...*

**Ford's fast and safe on rough terrain**

# Slash handling costs outside, inside, all around the job!

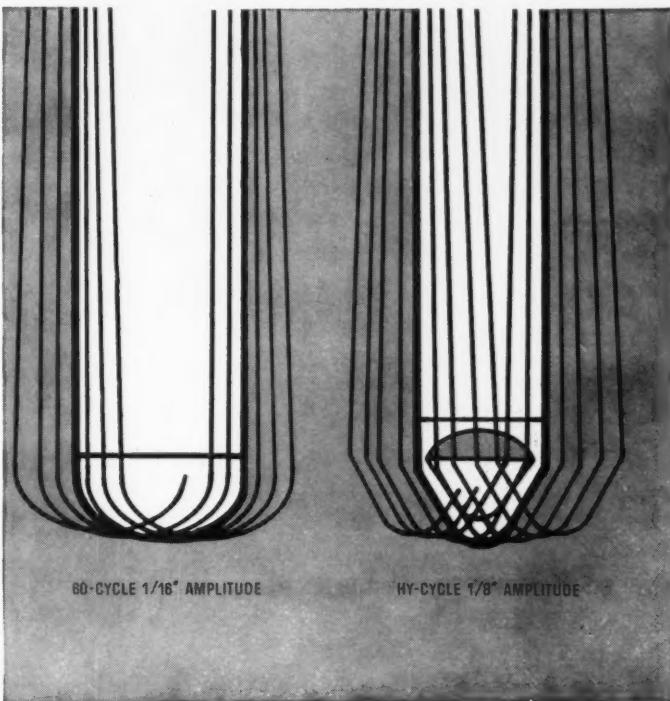
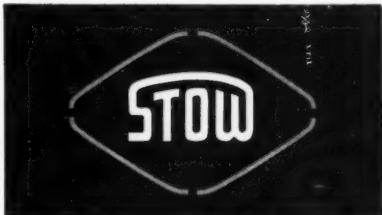
## NEW FORD 4000 HEAVY DUTY FORK LIFT

- 4,000 lbs. rated load at 24" load center.
- 5,000 lbs. rated load at 15" load center.
- Equals or exceeds fork lift industry recommendations for stability and capacity.
- Stability, ruggedness and traction for fast, safe operation on rough terrain.
- Designed to cut outdoor and indoor handling costs of building contractors, industrial plants, concrete product producers, building supply yards, loggers.
- Choice of gasoline or diesel engine.
- Standard stacking heights—10, 12, 16, and 21 ft.
- Two and three stage masts.
- Choice of forks and choice of 42" or 60" face plates.
- 14 x 24 eight-ply drive tires for maximum traction, load carrying capacity.
- 7.50 x 16 eight-ply steering tires.
- 4-speed reversing transmission; up to 15 mph transport speed.
- Rugged full length frame.
- 7,000 lbs. capacity steering axle.
- Total weight, with 4,000 lb. load—approximately 13,700 lbs.
- 2,300 lbs. cast bumper-counterweight.
- Flow-control valve prevents accidental free fall of carriage.
- 15-gallon capacity gear type pump.
- Stack type 3-spool control valve.
- Mast tilts 13 degrees back, 7 degrees forward (tilt angles reversible with special attachment).
- 6" side shift, standard equipment.
- Adjustable cushioned seat, convenient controls and full hydraulic power steering boost efficiency, reduce fatigue.
- Excellent operator vision.

GET ALL THE LOW-COST DETAILS FROM YOUR FORD TRACTOR DEALER

*Ford Motor Company*

**STOW  
HY-CYCLE  
VIBRATOR  
GIVES  
TWICE AS MUCH  
AGITATION**



This 180-cycle high-frequency, high-amplitude motor-in-head vibrator gives twice the agitation as 60-cycle units, and has the power to maintain a constant wallop in the stiffest mix. It delivers a powerful wallop that gives you stronger, smoother-surface concrete structures fast. It's rugged and versatile! Features a 20" long vibrator head in 1½" or 2¾" diameters. When powered by an HCG Hy-Cycle Generator, VPM and generator speeds are synchronized, can be adjusted up to 14,000 VPM to suit the job. Standard HC Vibrator equipment includes: 4-ply flexible casing in 7', 14' and 21' lengths; 25' electric 3-prong cable; and handy, immersible on-off switch 7 ft. from head. It's job-proven to save you time, money and maintenance. Example: Hoffman Construction Co. had an HC Vibrator in constant operation 12 hours a day on their Municipal Recreation Center project in Portland, Oregon. The job: vibrating walls 12" thick, 18' high, 150' long, plus columns mixed with thick 2¾" slump. Result: "This job proved," according to Hoffman's superintendent, "that Stow Hy-Cycle Vibrators are the most economical, smoothest-operating vibrators we've ever used." See for yourself on your next job—big or small.

*Call your  
Stow distributor  
or mail  
this coupon  
for Bulletin  
610-3.*

**STOW MANUFACTURING CO.**  
Dept. N-3, 31 Shear St.  
Binghamton, New York

Please send me Bulletin 610-3 on Stow Hy-Cycle Vibrators.

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

**STOW MANUFACTURING CO.** Binghamton, New York

# EXPLOSIVES



# ENERGY....

**Have you checked into the many ways it can handle work that used to be done with mechanical energy . . . and do it cheaper, faster, more efficiently?**

Lower TOTAL job costs can be your reward for examining ALL the ways in which explosives energy can work for you. For example, the J. A. Tobin Construction Company of Kansas City, Kansas did just this. On a section of the Turkey Creek Expressway, Interstate 35, there were no nearby homes or confining obstacles, so the objective was maximum breakage and production on every shot, together with efficient use of equipment. Gianite ammonium nitrate blasting agent was chosen for the task—low cost, ready to load, but with the wallop needed to do the job.

For this contractor, selection of the right primers, blasting agents, and blasting techniques meant more thorough and consistent breakage, more payload work out of each piece of his equipment, and minimum downtime from end to end of the job. This is just one example of efficient use of explosives energy. Others? . . . of course!

**In coal stripping . . .** with the help of the Atlas Representative, one operator discovered a way to eliminate almost one-half the total mechanical handling of overburden. He used explosives force to move rock directly to the spoil pile.

**In open pit ore mining . . .** production has been speeded, costs cut by "designing" the blast to create additional fragmentation,

allowing much of the rock to bypass the primary crusher.

**In quarrying . . .** deliberate planning for thorough blasting (more than "just enough") saves more than its cost in reduced wear on crushers, wire rope, shovels—the whole gamut of equipment.

Efficiencies, and therefore savings, like these are available to you. Your Atlas Representative is both experienced and skilled in achieving these results in a wide variety of blasting conditions. There's no secret, unless it's knowing how to use the right combination of Atlas explosives, blasting agents (including *all* forms of ammonium nitrate), and blasting supplies for each job.

If you haven't checked your blasting methods lately, perhaps there's a new one Atlas can tell you about—the one that may be exactly the answer to help you reduce your overall costs. Look to Atlas' full line—the only full line in the industry. New, modern facilities are now in production at Joplin, Missouri to assure ready availability of all products. And to give you faster, more flexible local service, new distribution facilities are being established coast to coast. For assistance, call in your Atlas Representative, or write directly to:

**ATLAS POWDER COMPANY**  
**Explosives Division • Wilmington, Del.**



## ATLAS EXPLOSIVES

# Read this amazing comparison between Air Compressors. It's worth thousands of dollars to know.

	Compressor "J"	Compressor "X"
<b>Compressor Rating, Cfm</b>	<b>900</b>	<b>900</b>
<b>Hammer Operated</b>	<b>Vulcan #0</b>	<b>Vulcan #0</b>
<b>Blows per Minute</b>	<b>65 constant</b>	<b>58 only at max.</b>
<b>Gauge Pressure, Psi</b>	<b>105 constant</b>	<b>100 only at max.</b>
<b>Engine Speed, Rpm</b>	<b>1500 constant</b>	<b>900 to 2000 variable</b>

**JOB PROBLEM:** Driving 85' long, 10" diameter cylindrical piles for a large steel mill foundation.

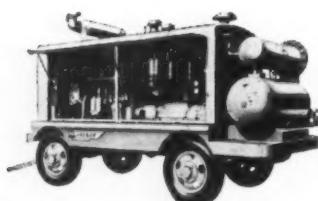
**PROCEDURE:** Contractor elected to drive with two Vulcan #0 single acting hammers rated at 50 blows per minute, requiring a minimum of 841 cfm of air @ 100 psig for peak performance. For power, he chose two "900" compressors of leading makes, one being a Jaeger 900 Roto Air Plus.

**PERFORMANCE:** The Jaeger, when driving, maintained a uniform constant speed of 1500 rpm and uniform gauge pressure of 105 psig. The hammer delivered 65 blows per minute with hammer air control valve only partially opened. (When approaching refusal, 20 blows were needed per inch of penetration.)

The other compressor, when driving, operated at surging speeds from 900 to 2000 rpm. It never maintained a working pressure above 100 psig. The hammer never delivered more than 58 blows per minute. (Manufacturer's service men, on this job, made several adjustments in the variable speed control but were unable to smooth out the speed.)

**POSITIVE PROOF:** To double-check this observed difference in performance, the contractor changed over the air lines from his compressors to the opposite hammers. *The Jaeger "900" gave the same superior performance with the other hammer as it had done with the first. The performance of the second compressor was not improved.*

**PAY OFF TO YOU:** On any job requiring 75 cfm to 900 cfm of air, a Jaeger Roto Air Plus will maintain steady full pressure at slower engine speed, using less fuel and with less wear on engine and compressor than any other rotary vane compressor using a comparable engine. A Jaeger saves you money. *On big air jobs you save big money.* Let your Jaeger distributor prove this. Ask him.



## JAEGER ROTO AIR-PLUS

THE JAEGER MACHINE CO., 800 Dublin Avenue, Columbus 16, Ohio

Jaeger Machine Company of Canada, Ltd., St. Thomas, Ontario

Worldwide sales and service through Jaeger International Corp., Apartado 137, Panama, R. P.



## **Better Balanced Euclid C-6 gets more work done!**



Owners of the "Euc" C-6 report that it's the best balanced tractor in the 200 h.p. class. Low center of gravity and close mounting of blades made possible by a rear-mounted radiator eliminate "nosing down" in heavy dozing work. The C-6 works easily on slopes where other crawlers can't be used because they won't hold on . . . and lower ground pressures let the "Euc" work in soft going that stops competitive tractors.

You've really got to see a C-6 at work to know what its excellent balance means in performance and productive capacity . . . your Euclid dealer will make arrangements, so get in touch with him soon.

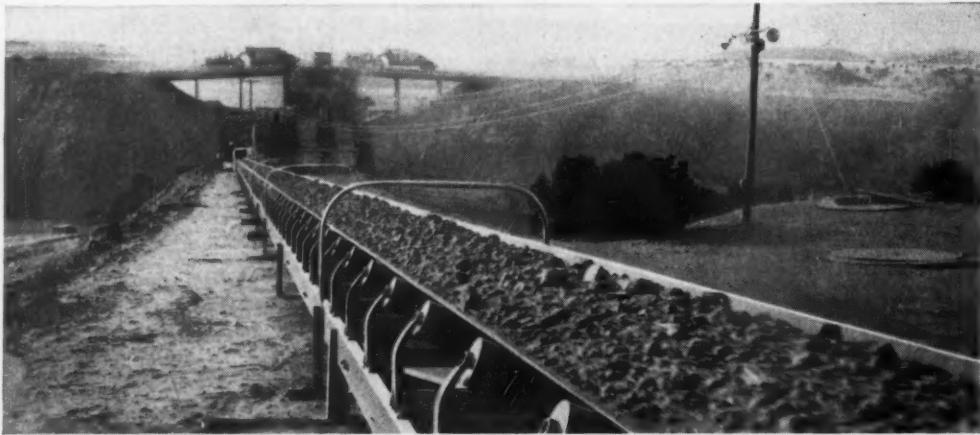
**C-6 . . . lowest cost crawler in the 200 h.p. class . . .  
and most versatile by far!**



**EUCLID**

DIVISION OF GENERAL MOTORS, HUDSON, OHIO  
Plants at Cleveland and Hudson, Ohio and Lanarkshire, Scotland

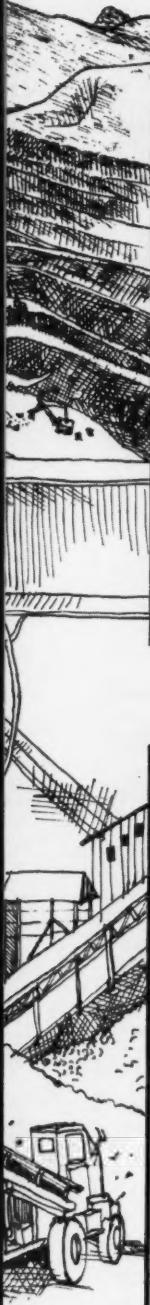
## AT THE HEART OF INDUSTRY...



**60,000 tons of material a day** are being carried by a US Conveyor Belt at New Mexico's Abiquiu Dam, which will be the fourth highest earth-fill dam ever built. More than a mile and a half of specially constructed 48" US Belt, traveling at 800 fpm, is used on this single conveyor. Other, wider US Belts are also being used in this major flood-control project to carry the more than 15,000,000 tons of fill required. Conveyors were designed and built by The Conveyor Company of Los Angeles in conjunction with US engineers for Mitrty Construction Company, general contractors.

CB 118

**Wherever the mining or construction industry operates,** you'll find U.S. Rubber products adding their "muscle" to the job...making it easier, more efficient, more profitable. As the world's largest producer of Industrial Rubber Products, US knows the needs of mining and construction men everywhere.



**6 U.S. Pilot® Pipes pump 5,000 gallons of water** per minute at a Minnesota taconite mine. The pipes lead from a barge pump to two concentrators. Rubber pipes were essential, for during pumping the barge may rise or drop 10 feet, straining hose and connections. Despite its flexibility, this pipe is extremely strong... takes 250 lbs. pressure.

H 110



**Now US brings another major development** to conveyor belting — the WeatherGard cover. In recent tests this cover was unharmed by 7 times the ozone torture that causes ordinary belt covers to crack and fail. What's more, the WeatherGard cover has much greater resistance to cracking from accelerated aging, has outstanding resistance to abrasion, wear, and weather.

CB 115



**The revolutionary new flywheel power take-off** on Red's transit-mix truck relies on a U.S. PowerGrip "Timing" Belt for the positive, smooth, direct, and even-flowing power essential to its success. The "Timing" Belt does away with a separate engine or front-end take-off, eliminates the need for lubricants, allows a payload increase of more than 600 lbs. per trip.

TB 106

For every industrial rubber product need, turn to **US**. For Conveyor Belts, V-Belts, the original PowerGrip "Timing"® Belt, Flexible Couplings, Mountings, Fenders, Hose and Packings... custom-designed rubber products of every de-

scription. Discover why U.S. Rubber has become the largest developer and producer of industrial rubber products in the world. See your U.S. Rubber Distributor or contact **US** directly at Rockefeller Center, New York 20, N. Y.

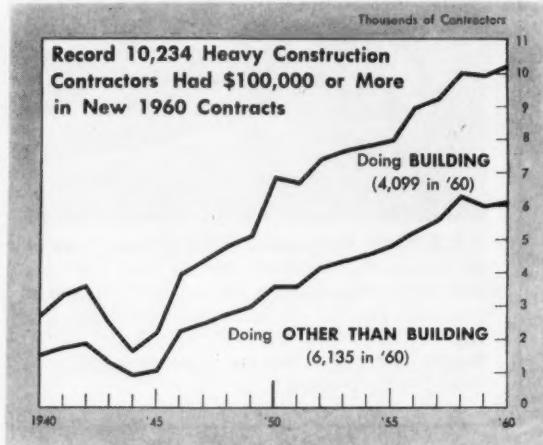
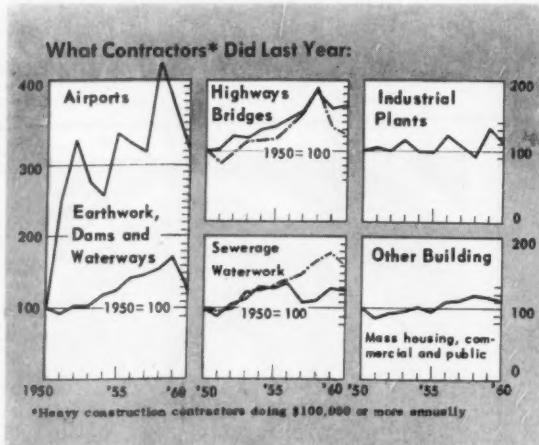
WORLD'S LARGEST MANUFACTURER  
OF INDUSTRIAL RUBBER PRODUCTS



**United States Rubber**  
MECHANICAL GOODS DIVISION

Circle 41 on Reader Service Card

# Construction Business . . .



## Record Number of Contractors Did \$100,000 in '60

ALTHOUGH MORE CONTRACTORS than ever before took on \$100,000 or more in new work last year, the number of contractors handling contracts for water and sewage works, bridges, earthmoving, and government building projects declined in 1960.

But the number of contractors that signed up work on highways, private mass housing, schools, and private building was on the rise (see table).

The 3% increase in the number of contractors doing at least \$100,000 worth of new construction last year more than offset the decline in 1959, which resulted from a cutback in federal-aid highway jobs.

*continued on page 45*

### 10,234 Heavy Construction Contractors Had \$100,000 or More in New 1960 Contracts

NUMBER TAKING on \$100,000 or more per year in contracts reported by Construction Daily

TYPE OF WORK	All Contractors with \$100,000 or more			Contractors With \$1,000,000 or more			Contractors With \$500,000-\$1,000,000			Contractors With \$100,000-\$500,000		
	1960	1959	Change %'	1960	1959	Change %'	1960	1959	Change %'	1960	1959	Change %'
Total	10,234	9,984	+ 3	3,783	3,489	+ 8	2,095	2,029	+ 3	4,356	4,466	- 2
OTHER THAN BUILDING	6,135	6,048	+ 1	1,936	1,776	+ 9	1,101	1,104	0	3,098	3,168	- 2
Waterworks	672	678	- 1	206	246	- 16	134	130	+ 3	332	302	+ 10
Sewerage	1,093	1,190	- 8	325	357	- 9	223	237	- 6	545	596	- 9
Bridges	740	811	- 9	357	394	- 9	103	148	- 30	280	269	+ 4
Highways and streets	2,858	2,803	+ 2	1,011	1,032	- 2	582	536	+ 9	1,265	1,235	+ 2
Earthwork, dams, waterways	652	765	- 15	310	370	- 16	99	124	- 20	243	271	- 10
Airports	730	914	- 20	306	429	- 29	116	145	- 20	308	340	- 9
Unclassified	775	857	- 10	265	290	- 9	128	122	+ 5	382	445	- 14
Federal (included above)	1,241	1,420	- 13	511	603	- 15	200	246	- 19	530	571	- 7
BUILDING	4,099	3,936	+ 4	1,847	1,713	+ 8	994	925	+ 7	1,258	1,298	- 3
Industrial	1,318	1,481	- 11	531	616	- 14	168	207	- 19	619	658	- 6
Mass housing, commercial and public	2,875	2,990	- 4	1,514	1,535	- 1	718	811	- 11	643	644	0
Housing	1,021	907	+ 13	592	507	+ 17	267	237	+ 13	162	163	- 1
Schools	1,091	995	+ 10	619	558	+ 11	308	290	+ 6	164	147	+ 12
Offices, private	249	189	+ 32	183	149	+ 23	38	30	+ 27	28	10	+ 180
Offices, public	66	99	- 33	54	56	- 4	6	26	- 77	6	17	- 65
Shopping centers, stores	271	275	- 1	191	187	+ 2	56	55	+ 2	24	33	- 27
Public industrial, military and atomic energy	186	243	- 23	81	102	- 21	29	40	- 27	76	101	- 25
Other building: private	549	457	+ 20	327	280	+ 17	112	89	+ 26	110	88	+ 25
Other building: public	368	353	+ 4	192	204	- 6	77	78	- 1	99	71	+ 39
Federal (included above)	305	370	- 18	172	223	- 23	34	62	- 45	99	85	+ 16

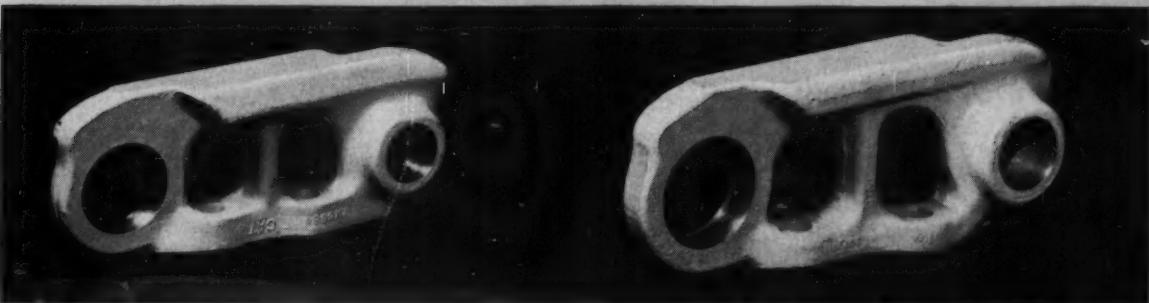
Special report to users of Cat D6 and D7 track parts



# Up to 25% Longer Link Life at No Increase in Cost

New track links have rails hardened deeper than any other brand . . . hardness with file-like, wear-resistant qualities

You can't "see" metallurgy and heat treatment in track links. But you'll definitely see the results in the extra life you get from the new Cat D6 and D7 track links. These superior links will outlast all other brands yet the suggested price is no higher than before.



## D6, 955 AND 561 LINKS

- "Hi-Electro" hardened rails give outstanding wear life.
- Rail wear cases are twice as deep as other brands.
- Closer bore tolerances retain pins and bushings better.
- Full 1 1/4" top rail surface to pin boss clearance allows more wear before roller flange contact.

## D7, 977 AND 572 LINKS

- 12% thicker rails eliminate peening, rebuilding distortion.
- 32% thicker struts and more steel in critical areas increase over-all strength, resist cracking.
- File-hard "Hi-Electro" hardened rails withstand abrasive wear.
- Uniform, wear-resistant rail cases deeper than other makes.

These new track links are made from special steel, carefully pretested *before* manufacture. They're forged, machined and heat treated to develop maximum strength and toughness. A non-peenable wear barrier is induced *deeply* into rail top and sides by exclusive "Hi-Electro" hardening. This exacting heat treatment permits maximum, file-like wear resistance without brittleness.

Try the new links . . . and the many other *special-purpose* tractor undercarriage parts, all designed and built to keep your cost-per-hour to a minimum. Cat undercarriage specialists can help you select right combinations and give you money-saving recommendations tailored to your particular needs. It's all a part of your Dealer's Custom Track Service . . . the practical approach to lowering undercarriage costs by extending part life and machine availability through proper parts selection and parts care.

Etched rail cross-section shows deep, uniform wear case found on top and sides of new links.



**CATERPILLAR**

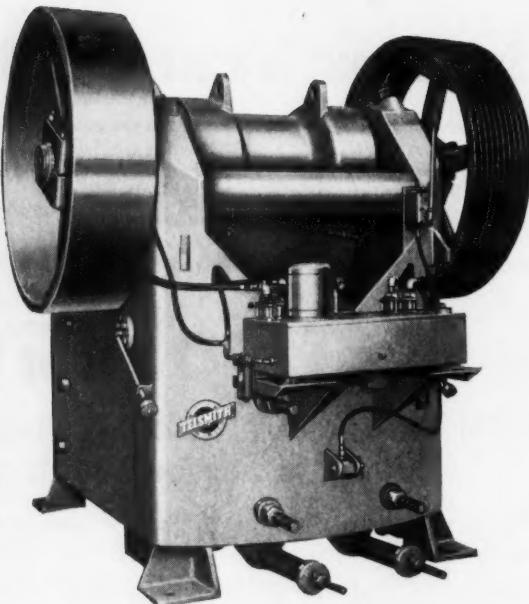
Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

Caterpillar Tractor Co., General Offices,  
Peoria, Illinois, U. S. A.

*completely*

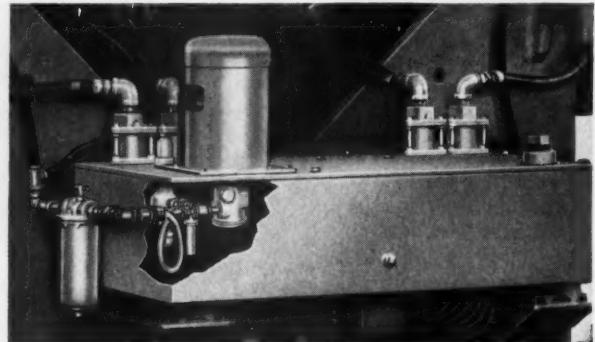
# New

**AUTOMATIC  
OILING SYSTEM**



Available as optional equipment on 30" x 42" and 42" x 48" sizes

- bearings last longer
- lube costs go down
- capacity goes up
- PROFITS are BIGGER



## the ODDS are 80 to 1 in your favor

Now under severest abrasive dust conditions Telsmith Jaw Crushers run cooler at full capacity with oil changes every 4 months and no time out for lubrication in between. From 80 grease jobs to 1 oil change! More vital, you automatically end bearing failure due to improper lubrication. Filter-fresh oil in correct quantities circulates automatically, greatly prolongs bearing life, improves crusher performance. Find out why and how this newest jaw crusher development will save you many times its cost. Ask your Telsmith distributor.

### HOW THE SYSTEM WORKS

Oil is pumped through the filter into crusher bearings and returns to the reservoir through flexible hoses. The pressure by-pass serves to insure a flow of constant pressure to the bearings and the temperature sensing device sounds an alarm if the oil temperature exceeds an acceptable limit.

The pressure-temperature control switch is mounted on the bottom of the tank for easy access. The tank can also be fitted with heating elements for cold weather starting. Send for Bulletin 280.

J-4-361



**SMITH ENGINEERING WORKS**  
512 E. CAPITOL DRIVE, MILWAUKEE 1, WISCONSIN

Circle 43 on Reader Service Card

44

Cable Address: Songworks, Milwaukee • Representatives in Principal Cities in all Parts of the World

Circle 44 on Reader Service Card

CONSTRUCTION METHODS

DIVISION OF  
**Barber-Greene**

The record number of contractors that were involved in building accounted for most of the 1960 increase in the \$100,000 club. This category showed a 4% rise, the third consecutive yearly increase.

The number of contractors doing more than \$100,000 worth of work in the other-than-building category climbed by 1%—not enough to surpass 1958's all-time high of 6,388, but still high enough to be the second biggest year on record.

The number of contractors who became members of the million-dollar club last year increased by 9%.

In the middle-sized category—those doing \$500,000 to \$1 million in new work—only building contractors showed an increase. Private building and public school construction provided the lift. Although the number of contractors doing highway and sewage work in this category also increased, the drop in the number of other-than-building contractors held the 1960 total down.

### **Competition Will Force Manufacturers to Merge**

In the past few years, the number of companies that manufacture construction equipment has increased sharply. From 1958 until the beginning of 1960, the number of manufacturers reached 714—up from 611 according to Dept. of Commerce figures.

But 1961 has brought on a reversal of this trend. There are definite signs that competition for the contractors' dollar is leading to more mergers or other forms of consolidation.

In 1960, from 50 to 60 firms merged or took other steps that had the effect of cutting down the number of firms in the equipment manufacturing business. These other steps included subcontracting part of a product line to another manufacturer, selling a product line, or discontinuing production of a particular type of equipment.

And if stiff competition continues throughout this year—and there is no reason to think that it won't—you can expect a sharp increase in the number of firms merging, folding, or selling out a product line.

Some experts indicate that the number of firms affected by mer-

gers or other retrenchment action may reach 80 before the year is out. (It should be pointed out that the construction equipment field is one of the first to attract new capital when the market favors the sellers.)

During 1961, the construction equipment industry is expected to increase its output over last year. But even the most optimistic estimates expect production to reach only about one-half of the industry's capacity of \$3 billion a year.

Shifts in the types of equipment now being sold also contribute to consolidation in the ranks of equipment makers. Sales of crawler tractors in 1960 were about 24,000—less than one-half of the unit total sold in 1956.

But the dollar volume of crawler tractor sales was about equal for 1956 and 1960. This reflects the greater number of large-size tractors sold in 1960, as well as a substantial rise in prices over the 4-yr span.

Another example of the shift in equipment sales shows up when sales figures for power cranes and shovels are examined. Most reliable sources estimate crane and shovel sales for 1960 at about 4,100 units. This compares with the 14,000 units that were shipped in 1952. On the other hand, crawler-type tractor-shovel shipments reached 8,000 in 1958, 10,000 in 1959, and an estimated 12,000 units last year.

### **High Operating Costs Hurt Contractors**

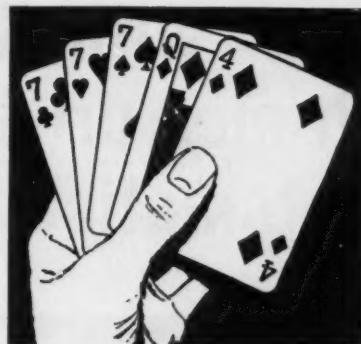
Excessive operating costs took a heavy toll of contractors last year. More than 10% of those firms that failed blamed operating expenses with dumping them deep into the red. According to Dun & Bradstreet figures, the number of such failures last year soared by 55%.

The most common cause of bankruptcy among contractors is still lack of new work, but fewer firms listed this as a major cause of failure. In 1959, 39.6% of firms that failed blamed lack of new work as a prime cause of bankruptcy; last year this percentage dropped to 36.4%.

Other reasons for bankruptcy were excessive fixed assets and inventories. These reasons figured

continued on page 48

## **POKER? Play to win!**



### **How would you play this hand?**

Raise? If your 3-of-kind are nines or lower, yes. Four times in five your hand will be high before the draw, but protect it. If the 3-of-kind are tens or better, don't raise until after the draw. You want customers.

### **Here's a sure winner from FORD:**

Sherman C-8 Bobcat power digger—master of the bell hole.

From one quick-set tractor position, the Bobcat digs clean, straight-sided bell holes faster and cheaper than any other unit on the market. Close-coupled to tractor, excellent for work in close quarters.

The Bobcat's a master of the small hole, too. Digs 5 feet deep with a surface opening as small as 48" in length. Get all the details from your Ford Tractor Dealer, or write:

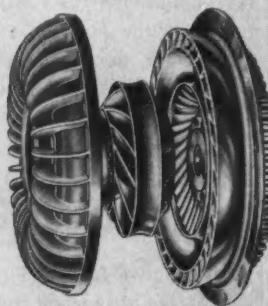
**Tractor and Implement Division  
Ford Motor Company  
Birmingham, Michigan**



Circle 45 on Reader Service Card

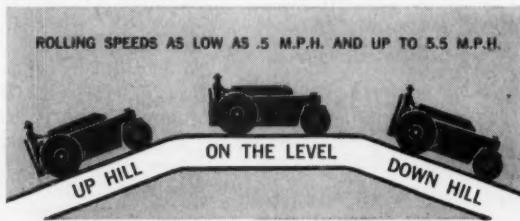
# You'll roll more surface every hour with GALION ROLL-O-MATICS. Proper driving power is applied automatically as needed.

THIS GALION ROLLER won't falter on any terrain. It's equipped with Roll-O-Matic Drive—a highly efficient combination of torque converter, tail-shaft governor and two-speed transmission.



ROLL-O-MATIC DRIVE  
SELECTS ENGINE POWER . . . AUTOMATICALLY  
... FOR VARYING ROLLING CONDITIONS

- AUTOMATIC APPLICATION OF POWER. It provides an infinite number of drive ratios for speeds in either direction, up grades and down.
- AUTOMATIC REGULATION OF ROLLING SPEED. It allows roller engine to speed up or slow down without stalling or overloading.



For every compaction and finishing job there's a Galion Roll-O-Matic that's just right for you. Sizes? The world's broadest range of variable weights from 3 to 20 tons. Ask for latest catalog data. The Galion Iron Works & Mfg. Company, Galion, Ohio, U.S.A.

ROLL-O-MATIC DRIVE is standard on Galion rollers so every user benefits by getting ...

- AUTOMATIC MULTIPLICATION OF TORQUE. It absorbs the build-up of roller inertia and provides smooth forward-and-reverse action.

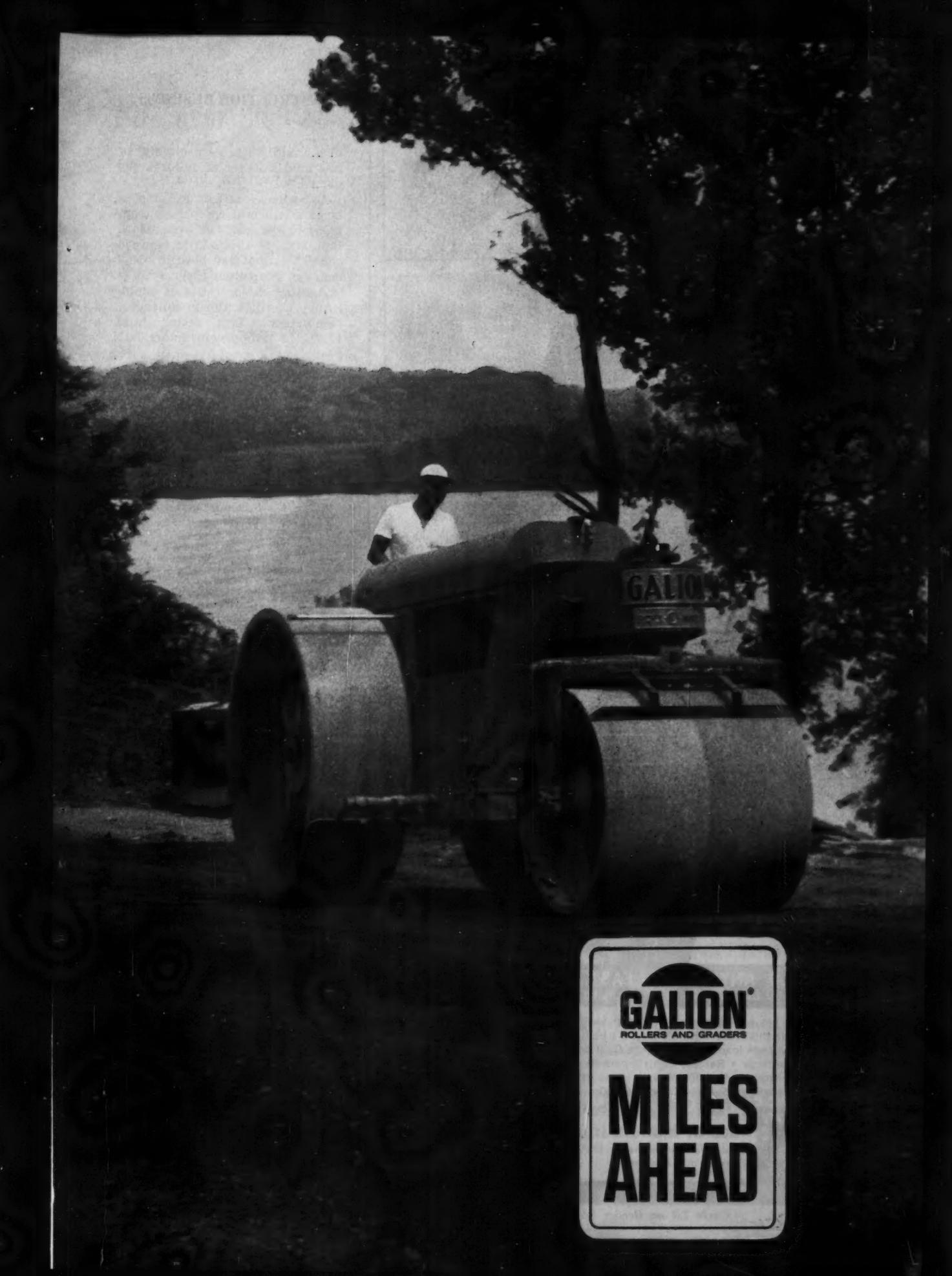
611  
RENT A GALION ROLLER—Keep on schedule—increase profit—without tying up working capital. Ask about the Galion Rent-A-Roller Plan.

THE GALION IRON WORKS & MFG. COMPANY, GALION, OHIO, U.S.A.



General and Export Offices, Galion, Ohio, U.S.A.—Cable Address, GALIONIRON, Galion, Ohio

Circle 46 on Reader Service Card



GALION

**GALION®**  
ROLLERS AND GRADERS

**MILES  
AHEAD**

# "PRECISE POWER"

BY CONTINENTAL  
MORE POWER TO YOU  
IN CONSTRUCTION



"More Power to You" is a four-word summary of Continental's stock in trade. And actually, it tells only part of the story, for Continental provides not only MORE but BETTER power—power that is engineered precisely to its job. Continental builds one or more engine models—for use on all standard fuels—for construction jobs of every type and size. The unmatched breadth and diversification of the Continental line assures precise Red Seal power for every construction application. Not only in this field, but on farm and ranch, in industry and transportation—

ANY EQUIPMENT  
IS BETTER WITH  
DEPENDABLE  
CONTINENTAL POWER



MODEL F-226 (Gasoline)  
INDUSTRIAL CLOSED POWER UNIT  
73 H.P. at 2400 R.P.M.

*Continental Motors*  
*Corporation*  
MUSKEGON, MICHIGAN

Circle 48 on Reader Service Card

WELD ANYWHERE / FAST / AT LOW COST  
try this "workhorse of the metal working industry"

You'll get a bigger return on your welder investment when you operate this Hobart. Here's why: It's built to last and liberally rated to take peak loads • Multi-Range Dual Controls provide 1,000 current settings • Remote Control permits fine current adjustments at the work • An Idling Device saves gas • 1 KW DC outlet provides auxiliary power • Choose a 300, 400 or 600 amp. size.

for complete details ask for data sheet A-210

**HOBART**  
WELDERS & ELECTRODES

**HOBART BROTHERS CO., Box 671, Troy, Ohio,**  
"Manufacturers of the World's Most Complete Line of  
Arc Welding Equipment"

Circle 250 on Reader Service Card

## CONSTRUCTION BUSINESS...

*continued*

in 4.3 and 2.3%, respectively, of the total number of failures reported.

Experience failed to stop a large number of companies from going to the wall last year. More than 20% of 1960's failures were companies that had been in business for more than 10 yr.

Another major cause of bankruptcy was difficulty in collecting receivables. This factor hurt 15.1% of failing contractors last year.

## SOME BIG CONTRACT AWARDS OF THE MONTH

**Foley Brothers and Holland Construction Co.**, St. Paul, Minn. Low bidders for Fontenelle Dam, near Kemmerer, Wyoming. Bureau of Reclamation, Denver, Colo. \$7,917,170.

**Franklin Contracting Co.**, Little Falls, N.J. Low bid for interchange connecting Interstate 80 with New Jersey Route 17, Bergen County. New Jersey State Highway Dept., Trenton. \$4,133,-661.89.

**Western Contracting Corp.**, Sioux City, Iowa. Dam, dikes, and spillway for Summersville Reservoir project, Gauley River, W. Va. Corps of Engineers, Huntington, W. Va. \$15,372,993.25.

**Malan Construction Corp.**, New York, N.Y. Hospital and medical clinic buildings, Cleveland, Ohio. Veterans Administration, Washington, D.C. \$14,790,000.

**R. E. Hazard Contracting Co.** and **W. F. Maxwell Co.**, San Diego, Calif. Build 1.8-mi stretch of eight-lane highway in San Diego. State Dept. of Public Works, Sacramento. \$7,363,693.

**W. J. Megin, Inc.** Paperboard mill and power plant, Versailles, Conn. Federal Paper Board Co., Inc., Bogota, N.J. Estimated total cost, \$5 million.

**J. A. Jones Construction Co.**, Ottawa, Ontario, Canada. Sewage work in Ottawa. City of Ottawa. \$3,699,400.

*continued on page 50*

# With over \$200 an hour at stake - NO DOWNTIME WHATSOEVER

(ALMASOL Performance Study #402)

During pouring stages on the \$8,000,000 Federal Building in Houston, Texas, a breakdown on the concrete supplying crane would have cost the prime contractor, Fisher Construction Co., Inc., over \$200 *an hour* for an idle crew's labor alone. This deadly expense would go on until repairs were complete, or a rented replacement machine was on the job.

This Link Belt #108 crane (center photo) used to hoist concrete supplies to upper levels (fitted with a 185' boom and 30' jib) has been moving over 50 yards of concrete every hour for over a year without a single hour lost for repairs. ALMASOL "Wear Arresting" Lubrication protection has kept this machine running dependably without any "\$200 an hour" interruptions.



A Lima crane lubricated with ALMASOL products since nearly new has operated over 2½ years in damp, salty, coastal conditions with just 2 days' downtime—then because sprockets broke off in track-deep mud.

Despite the fact that they've had 104 days of rain during this job, Fisher Construction Co. is ahead of building schedules. Fred Fisher, Operational Vice President of the firm, gives a large measure of credit to consistently outstanding equipment performance with LE Brand custom-built lubrication.

While Fisher Construction Co., Inc., has been a user of LE products since 1953, the experience gained on this massive project has sold them more than ever. There has been *no downtime whatsoever* in building this 12-story, 2-penthouse level, solid reinforced concrete superstructure. It required over one million square feet of forms, 32,000 cubic yards of concrete (about 5,000 ready-mix truck loads), and 3,200 tons of steel reinforcing.

We believe this proven performance of ALMASOL "Wear Arresting" Lubrication justifies your investigation . . . and evaluation in your own equipment.

WRITE, WIRE, OR PHONE DEPT. CME-6.



**LUBRICATION ENGINEERS, INC.**

Fort Worth 11, Texas

Custom Built Lubricants for Heavy Equipment





**OWEN**  
**BUCKET COMPANY**  
**BREAKWATER AVENUE • CLEVELAND 2, OHIO**

BRANCH OFFICES: New York • Philadelphia • Chicago • Berkeley, California • Fort Lauderdale, Florida

Circle 50 on Reader Service Card

Hook an OWEN Clamshell Bucket to your crane and you're sure of superior performance and longer life. For OWEN Buckets have exclusive super-efficiency and long-lived features you won't find in ordinary clamshells.

For instance:

- Block and tackle type reeving
- One-piece head construction
- Recessed lips
- Single main shaft
- Riveted bowl assembly

For over half a century OWEN has been building clamshell buckets—tailored to meet the requirements of "men who move the earth the world over".

So team your crane to the bucket with the BIG BITE that's JUST RIGHT for every job!

**Write today**  
for the money-saving  
facts and figures.

#### **CONTRACTS AWARDED . . .** *continued from page 48*

**Fluor Corp., Ltd.**, Los Angeles, Calif. Phase 2 missile base construction at Davis Monthan Air Force Base, Tucson, Ariz. Corps of Engineers, Los Angeles. \$35,-645,500.

**Cogswell Construction Co.**, Baltimore, Md. School in Baltimore. Roman Catholic Archdiocese, Baltimore. \$3 million.

**Slattery Contracting Corp.**, Massapequa, N.Y. Underground garage, bridge, and public plaza for Lincoln Center for Performing Arts, New York, N.Y. Commissioner of Parks, New York. \$8,172,000.

**Johnson, Drake & Piper, Inc.**, New York, N.Y. Road work in Erie and Orange Counties. New York State Dept. of Public Works, Albany. \$7,356,000.

**Perini Corp.**, San Francisco, Calif. Phase 1 of Golden Gateway Redevelopment, San Francisco. San Francisco Redevelopment Agency. \$15,000,000.

**Boyd H. Kline**, Bloomsburg, Pa. White Haven State School, White Haven, Pa. General State Authority, Harrisburg. \$4,102,326.

**Public Constructors, Inc.**, Blackwood, N.J. Roads and bridges in Middlesex County. New Jersey State Dept. of Highways, Trenton. \$3,959,671.

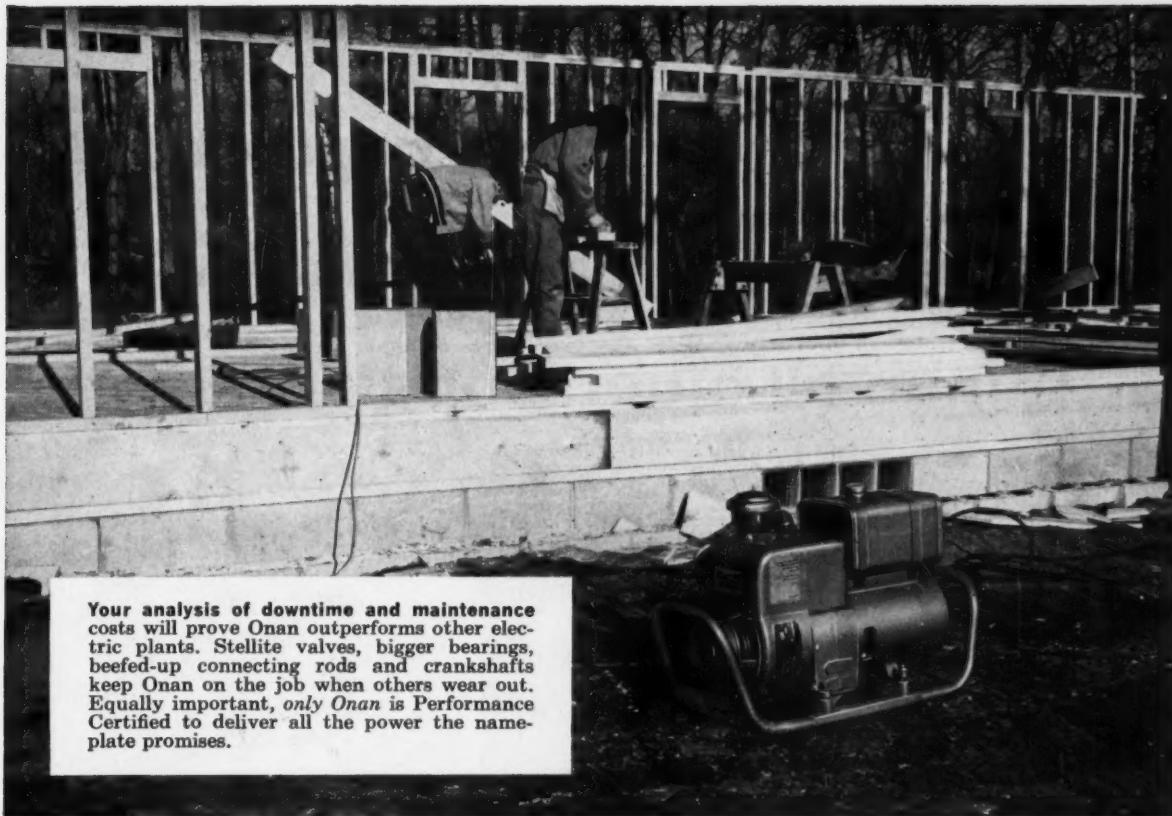
**Dinwiddie Construction Co.**, San Francisco, Calif. Twenty-two-story bank and office building, Los Angeles. Getty Realty Co., Los Angeles. Estimated cost, \$8.8 million.

**General Construction Co.**, Seattle, Wash. Low bid for first section of East Side interceptor sewer, Seattle. Municipality of Metropolitan Seattle. \$4,593,000.

**L. W. Lamb Co.**, Holland, Mich. Low bidder for Interchange at U.S. 131 and Interstate 96, Kent County, Mich. Michigan State Highway Dept., Lansing. \$4,996,-954.

**Harmon Construction Co.**, Oklahoma City, Okla. Office building at Denver, Colo. Mid-America Building Corp., Denver.

*continued on page 55*



Your analysis of downtime and maintenance costs will prove Onan outperforms other electric plants. Stellite valves, bigger bearings, beefed-up connecting rods and crankshafts keep Onan on the job when others wear out. Equally important, only Onan is Performance Certified to deliver all the power the nameplate promises.

# Only Onan is certified to give you all the power promised by its nameplate

It's a fact that many electric plants on the market today do not deliver the output promised by their nameplate rating.

Every Onan plant is given a rugged workout *under full load* before it is shipped—*your assurance* that the Onan you buy is ready for hard work the day you get it.

But this isn't enough. Independent laboratory inspectors pull surprise inspections to double-check our tests and testing methods. They pull a plant off the line, run it, stop it, load it, overload it, check and recheck. Their torture test gives positive proof of Onan's quality. End result: *Onan's exclusive Per-*

*formance Certification . . . your assurance* of getting every watt of power you pay for.

So when you're tempted by an electric plant "bargain," make sure its nameplate rating is not "inflated." Be sure you're getting full measure for your money. Remember, *the electric plant that short-changes you in power output is no bargain at any price!* Only Onan is Performance Certified to deliver everything the nameplate promises.

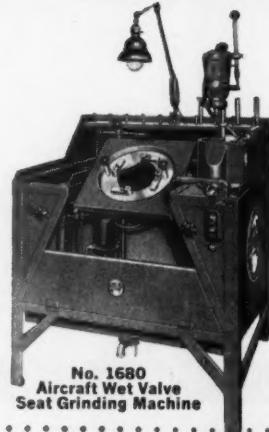
See Onan electric plants soon. Compare before you buy. You'll find your Onan distributor listed in the Yellow Pages. Call him or write direct.



**ONAN** Division, Studebaker-Packard Corporation, 2565 University Ave. S.E., Minneapolis 14, Minn.  
Circle 51 on Reader Service Card



# More valves are ground on **SIOUX** equipment than all other kinds combined



Ever since valve grinding equipment has been made, men who lay down their hard, cold cash, have been using, comparing, testing. The result? More Sioux valve grinding equipment is in use than all other kinds combined! It's preferred for precision, for length and breadth of line, for incomparable long life. There's SIOUX equipment for the biggest diesel. Sioux alone makes a wet valve face grinding machine

for aircraft radial engines. There's a complete line of Sioux valve servicing equipment for small engines. And for everything in between. Twenty-four pages of the Sioux Catalog are devoted to illustrations, descriptive matter, and specifications on valve servicing equipment. There is no better place to turn for information and help than to SIOUX.

*Ask for the 1961 catalog!*

**ALBERTSON & CO., INC.**, SIOUX CITY, IOWA, U.S.A.

Factory branch—575 Connecticut Ave., South Norwalk, Conn.

Canadian Warehouse—379 Comstock Rd., Scarborough, Toronto, Ont.

Sold through Distributors in U.S., Canada, and Overseas

*Consult the yellow pages under "Tools, Electric" for U. S. Distributors*

- ▲ AIR AND ELECTRIC IMPACT WRENCHES • DRILLS • SCREWDRIVERS • NUT RUNNERS • SANDERS • GRINDERS
- ▲ ELECTRIC POLISHERS • FLEXIBLE SHAFTS • PORTABLE SAWS • VALVE GRINDING MACHINES ▲ ABRASIVE DISCS

Circle 52 on Reader Service Card



# BIGGEST NEWS in wire rope in years!

You owe it to your company to learn about Macwhyte's new 7-FLEX. But—be prepared to change your thinking about wire rope!

You've never seen another wire rope like 7-FLEX—there is no other like it! It's an *all-purpose* wire rope, flexible as 8-strand—rugged as 6 x 19—fatigue-resistant like a 6 x 37.

There is 16½% more wearing surface in 7-FLEX than there is in a 6-strand rope. There is less unit pressure between rope and sheaves, so less rope and sheave wear. There is more sheave contact, less rope-creep. Result: longer rope life, less downtime, lower operating costs!

7-FLEX can make important savings on many wire-rope applications. Ask any Macwhyte distributor. Free Bulletin 60100-R available upon request.

## Other Macwhyte products that serve you profitably



**Slings** — Safe, easy-to-handle Macwhyte slings for every lifting need are available in round-braided, flat-braided, or Safe-Guard styles. Many standard designs. Also custom-made to your requirements. Send for Bulletins 5308-R and 5886.

**Corrosion-Resisting Wire Rope** — Many sizes and constructions in Stainless Steel, Monel Metal and plastic or nylon coated. Meet the requirements imposed by alkaline and acid conditions and marine atmospheres, temperatures, and humidity. Send for Bulletin 49-30.

**Wire Rope Assemblies** — Safe-Lock wire rope assemblies are precision made to your order in the size, length, and strength needed. Uniform high quality with fittings permanently swaged to the rope. Many standard designs. Send for Catalog 6101.



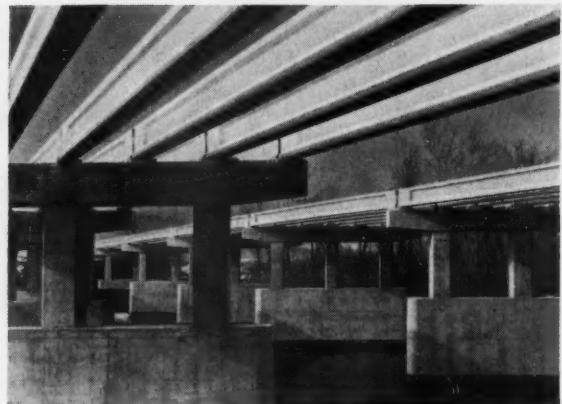
# MACWHYTE Wire Rope COMPANY

2900 FOURTEENTH AVENUE, KENOSHA, WISCONSIN

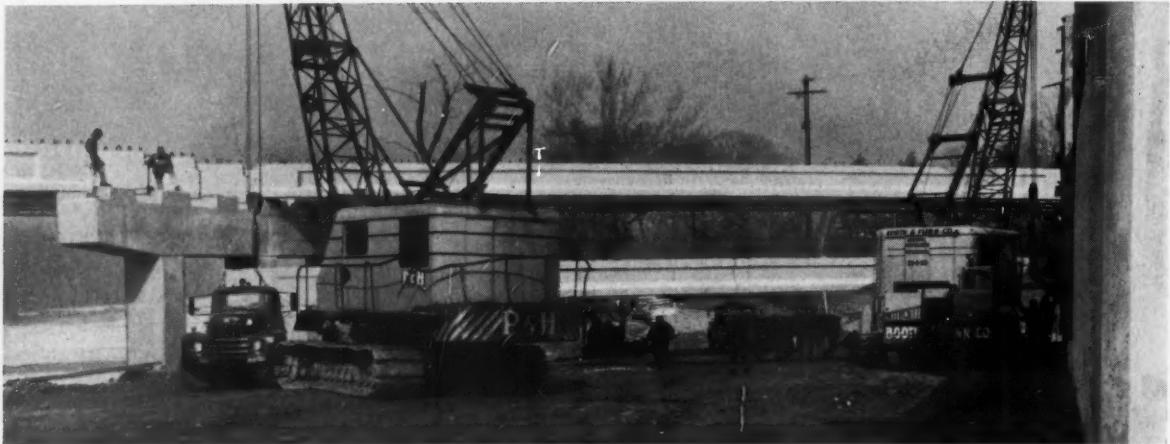
Wire Rope Manufacturing Specialists Since 1896

Circle 53 on Reader Service Card

# PRESTRESSED BEAMS for Interstate Highway Twin Bridge



Beams in place present graceful pattern of prestressed concrete. They range in length from 50' 3" to 90'.



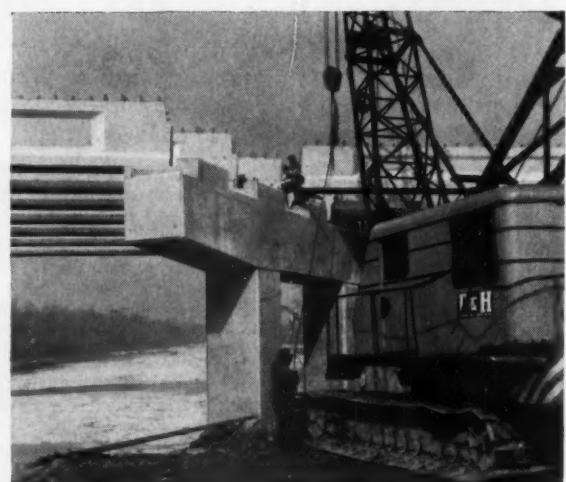
Two cranes lift from truck and place this huge 41½ ton beam in a matter of minutes.

- At Neshaminy Creek, near Croydon, Pa., another link in the new Delaware Expressway between Trenton and Philadelphia is completed quickly through the use of prestressed concrete. There are 112 beams of varying sizes, the largest being 90' long and weighing 41½ tons, in this 8-span twin bridge.

Like so many other bridges in this country's growing Interstate Highway System, this one is of prestressed concrete for experience-proved reasons: low initial costs, low maintenance costs, ease and speed of erection, trim appearance.

Eastern Prestressed Concrete Corporation used Lehigh Early Strength Cement in manufacturing the prestressed beams. Use of this cement permitted maximum production efficiency, resulted in quick completion of units to meet closely linked casting, trucking and erection schedules.

This is another example of the advantages of Lehigh Early Strength Cement in modern concrete construction. Lehigh Portland Cement Company, Allentown, Pa.



Beams spanning stream are 45" deep, while the 90' beams spanning roadway are only 39" deep.

**LEHIGH**  
**CEMENTS**

Circle 54 on Reader Service Card

*Owner:* Pennsylvania Department of Highways  
*General Contractor:* Booth & Flinn Company, Pittsburgh, Pa.  
*Prestressed Beams:* Eastern Prestressed Concrete Corporation,  
Line Lexington, Pa.

## CONTRACTS AWARDED . . . continued

**Nolan Brothers**, Wichita Falls, Texas. Water treatment plant at Sunnyvalle, Texas. City of Dallas. \$6,389,000.

**Hoffman Construction Co.**, Portland, Ore. Apartment building in Portland. Ladd Investment Co., Portland. \$5 million.

**Gilbert & Dolan Contractors**, Phoenix, Ariz. School at Phoenix. Phoenix Union High Schools College System Board. \$3,197,686.

**Joseph P. Blitz, Inc.**, New York, N.Y. Housing development in Manhattan. New York City Housing Authority. \$7,178,000.

**Western Contracting Corp.**, Sioux City, Iowa, and **Great Lakes Dredge & Dock Co.**, Cleveland, Ohio. Channel dredging at Detroit, Mich. Corps of Engineers, Detroit. \$4,498,135.

**Ball and Simpson**, Berkeley, Calif. Low bidder for 5.7 mi of highway, including five structures, in Humboldt County, Calif. Low bidder for 5.7 mi of highway, including five structures, in Humboldt County, Calif. California State Dept. of Highways, Sacramento. \$5,547,943.

**S. J. Groves & Son**, Syracuse, N.Y. Road work at Cannonsville Reservoir, Delaware County, N.Y. New York State Dept. of Public Works, Albany. \$3,806,312.

**J. L. Simmons Co., Inc.**, Chicago, Ill. Addition to St. Joseph's Hospital, Joliet, Ill. \$4,248,000.

**List and Clark Construction Co.**, Kansas City, Mo. Relocation of U.S. Highway 64, Keystone Reservoir, near Cleveland, Okla. Corps of Engineers, Tulsa. \$3,186,468.

**Blount Brothers Corp.**, Montgomery, Ala. Building at Arnold Engineering Development Center, Tullahoma, Tenn. Corps of Engineers, Nashville. \$9,950,000.

**Walter Kidde Constructors, Inc.**, New York, N.Y. Hospital addition at Elizabeth, N.J. St. Elizabeth's Hospital, Elizabeth, N.J. \$5,343,000.



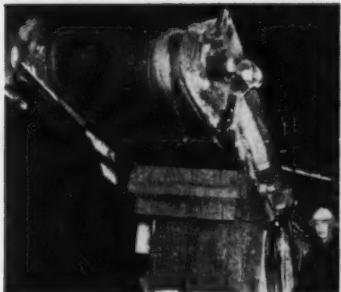
**"SUPER TRIPLE-S".** For conveying bulk materials under most severe operating conditions . . . aggregates, crushed stone and rock up to 10", abrasive ores—wet or dry. Especially suited for long center hauls where tension is high and extreme flexibility required. Built for uninterrupted service—utmost freedom from costly shutdowns for repairs. Tensile strength, friction and other details determined by specific requirements.

**"IT'S GOODALL'S SUPER TRIPLE-S. WE'VE FOUND IT TO BE OUR BEST BUY FOR JOBS LIKE THIS!"**

**"And the Same Holds True for Goodall Mucker Belts!"**

**"WEAR KING".** Developed especially for Mucking Machines in tunnel excavating, and used on most of the largest modern tunnel jobs. Construction provides highest resistance to continuous tension, terrific load impact, small-pulley flexing and ply separation.

Write for catalog describing the complete Goodall Belting line—conveyor, elevator, grader, mucker, hot material, etc.



**"If it's GOODALL, it MUST be Good!"**

Contact Our Nearest Branch for Details, Prices.

Manufacturers of Mechanical Rubber Products—Since 1870



Standard of Quality HOSE • BELTING • FOOTWEAR CLOTHING • EXPANSION JOINTS • PACKINGS • LINERS, ETC.

**GOODALL Rubber Company**

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N.J.  
Branches and Distributors Throughout the United States and in Canada

# SAVE

---

## .The truck

---



You can't find a better team for savings than this INTERNATIONAL model VF-190, with rugged V-8 power and Select-O-Matic

## Put INTERNATIONAL Trucks with

**Save on truck wear and maintenance:** Why is a Select-O-Matic transmission best? A coordinated combination of a five-speed synchromesh transmission with solenoid-controlled hydraulic clutch and high-efficiency torque converter, it can make definite savings in clutch, axle and engine operation. The dry clutch problem is eliminated, because hydraulically-operated clutch is always either *positively engaged* or *disengaged* by the solenoid, preventing drag. Most important of all, the torque converter cushions shock-loads and minimizes danger of tearing out the rear-end or axle.

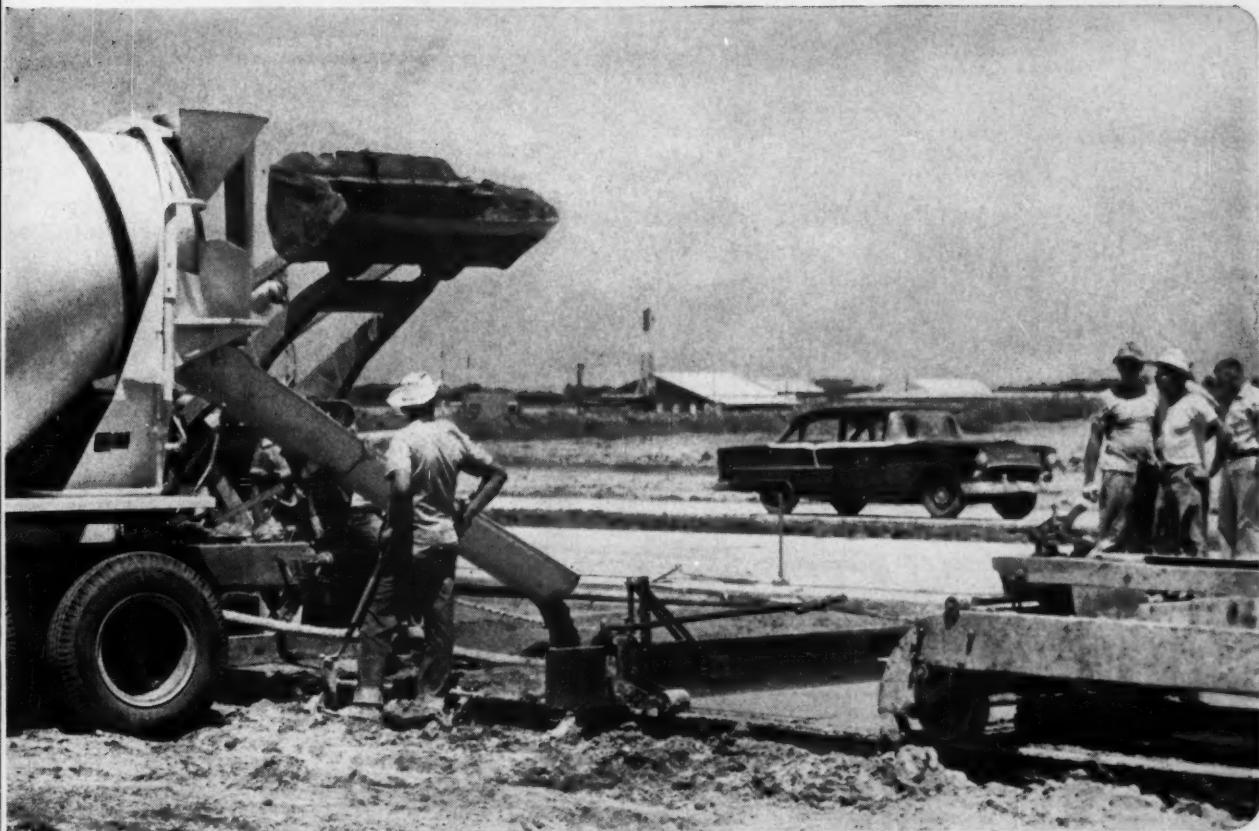
**Save on drivers:** More positive control of INTERNATIONAL Select-O-Matic 5-speed synchromesh transmission cuts down on drivers "lost-time" reports. High-efficiency torque converter and solenoid-operated hydraulic clutch means controlled up-shifting or down-shifting, less wheel

spinning. "Soft" starts become positive starts. Driving becomes less wearing, less "cowboy" and more nearly automatic. New drivers can be trained quickly and easily.

**Save the schedule:** Higher road speeds can be maintained with INTERNATIONAL Select-O-Matic transmissions. On grades, instead of the engine slowing down, the converter takes over to supply additional torque. Little speed is lost when shifting. Your drivers are given the pickup, the power and the gear selection to better *meet deadlines*.

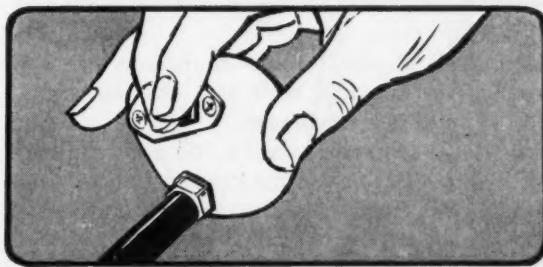
**Everybody saves** with proven INTERNATIONAL Select-O-Matic transmissions on their trucks—customers, owners, operators, drivers and maintenance men alike. Get the full story on performance-perfect Select-O-Matic transmissions from your INTERNATIONAL Truck Dealer or Branch. International Harvester Company, Chicago.

## *2.The driver 3.The schedule*



transmission. This husky 33,000 lb. GVW rated 6-wheeler won't quit under any circumstances.

### ***SELECT-O-MATIC transmissions on your payroll***



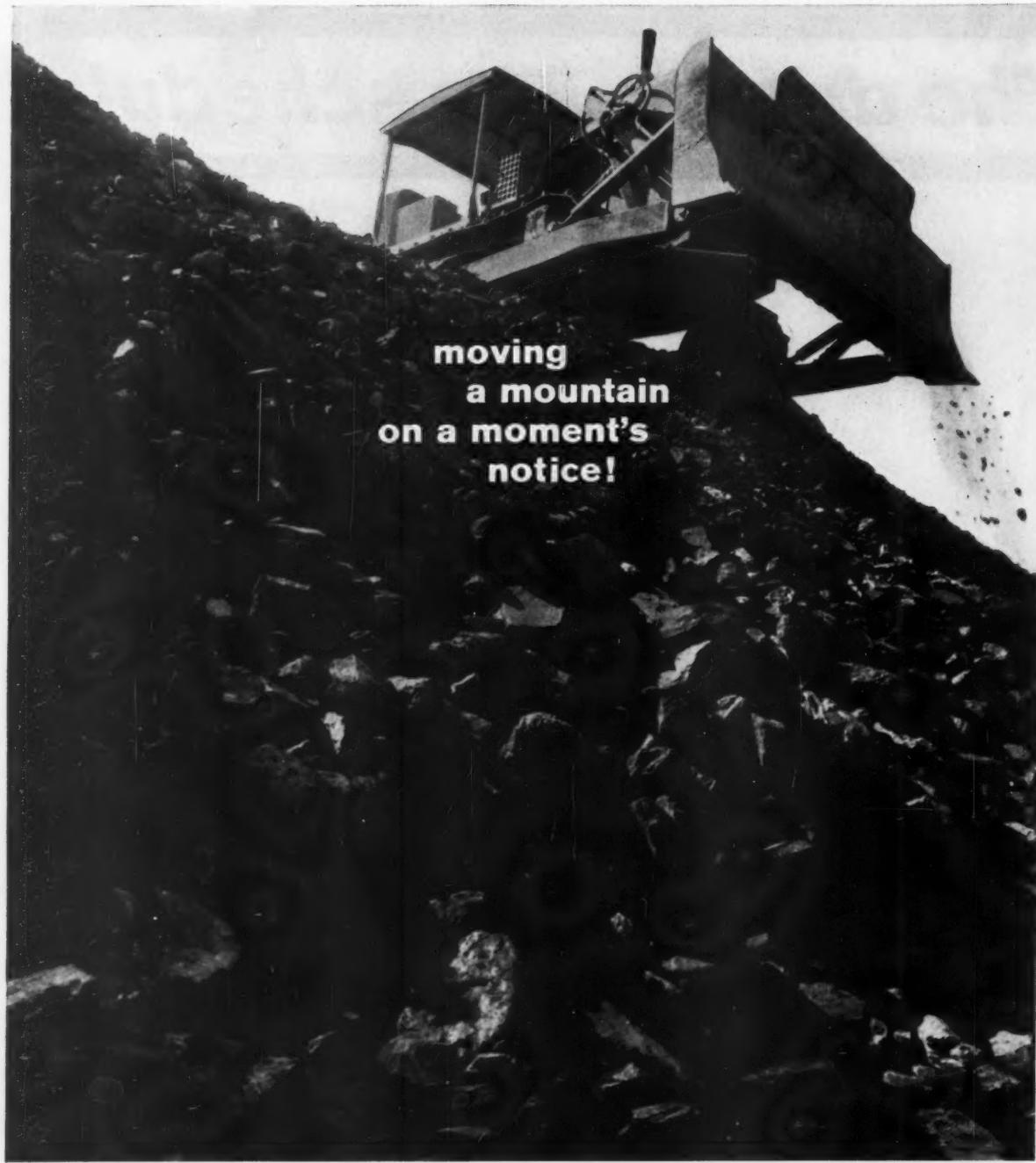
#### **Press this "Magic Button" for savings**

Solenoid-controlled clutching is so convenient and so effortless, it has become the talk of the truck stops. With less work and less fatigue, drivers are able to give full concentration to driving. They are better able to select and maintain the gear to meet the terrain. Much of the time and labor is taken out of the job.

# **INTERNATIONAL® TRUCKS**

WORLD'S MOST  
COMPLETE LINE





**moving  
a mountain  
on a moment's  
notice!**

ARMOUR EXCAVATING INC., Phila., Pa.

Needless to say, moving a Brazilian mountain around the Philadelphia area is no easy task. A few minutes after a hurry-up phone call from a large steel company that had a change of plans, the Armour Excavating Company was on the job. It had been contracted to stockpile 30,000 tons of Brazilian iron ore in the Philadelphia area. The call came during the night and the job was finished by noon the next day. That's the kind of fast-trigger service provided by Armour. And, it's the kind of service Armour requires . . . and gets from Cities Service.

Protecting all of the Armour equipment are Cities Service products such as C-300 oil and Trojan H multi-purpose grease.

If you have to produce service "on a moment's notice," you deserve the same kind of service . . . and you get it from Cities Service . . . plus top quality products. Why not call your nearest Cities Service Office . . . or write Cities Service Oil Company, 60 Wall Street, New York 5, N. Y.

**CITIES  SERVICE**  
*Out Front in Quality... Out Front in Service, too!*

Circle 58 on Reader Service Card

from  
apprentice  
to service  
expert  
...FAST!



Fig. 2 - Removing or Replacing Piston Rings with Tool J 8128

99. Remover and  
Ring T

J 8128



KENT-MOORE ORGANIZATION, INC.

28635 MOUND ROAD, WARREN, MICHIGAN • ENGINEERS AND MANUFACTURERS OF SERVICE TOOLS AND EQUIPMENT

Ma  
retur  
cleane

Inspection

Excessive  
cylinder 1  
operating  
quickly as  
filters and  
reduce to  
and forei  
and will,

The p  
.0007  
ing

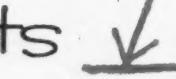
With K-M special service tools!

There's no shortage of service skill if you're following O.E.M. service manual recommendations and using the "J" number tools specified in these service instructions.

For "J" number tools are developed in cooperation with the equipment manufacturer to duplicate factory assembly conditions. They have built-in ability to greatly increase the speed and skill of your service staff.

For high quality service jobs at lowest labor costs . . . look for the "J" number in your service manual . . . the number that designates the educated tool for the job; a Kent-Moore "Rate-Maker" tool specially designed to make the repair or service job simple, quick and easy without risk of damaging parts.

60-H2

If it rolls on an axle  or turns in a bearing  or rides on a shaft   
if it slides in a groove  or moves  
on a pivot  if it bores  or  
cuts  or transmits pressure   
one of Sinclair's 500  
specialized lubricants is  
designed to make it work better.



SINCLAIR REFINING COMPANY 600 Fifth Ave., N.Y. 20 N.Y.

Circle 60 on Reader Service Card

## Tough-But Oh So Gentle

• Rocco "Tony" Piccone, a 20-yr veteran in the shop of Sidwell Brothers of South Zanesville, Ohio, is the compleat maintenance man. The 320-lb master mechanic has the brawn to push around a good-sized engine block, but when the occasion demands he also has the gentle touch of a competent surgeon. Below, he handles calipers to check the diameter of a bushing for a gear from a shovel that is being machined on a Monarch lathe in Sidwell's shop.



# ANNOUNCING LE ROI'S

A new line of powerful... highly portable...

*These rigs come on tires or tracks!*



## THE LRD-2

Here's a highly portable blasthole drill for making holes up to 4½ inches as deep as 30 feet... equipped for either positive-drive rotary drilling or powerful down-the-hole percussive drilling.

What's more, the LRD-2 is completely self-contained... and economically priced, too!

The entire unit is easily handled by one man. Controls are conveniently grouped at an operator's station located alongside the drilling area. The unit can be moved, leveling jacks hydraulically set, boom hydraulically raised, drill pipe and bits connected, and hole started — all with a few non-fatiguing motions.

Powerful direct mechanical drive keeps the rotary table turning — won't bog down or lose torque under rough going like air or hydraulic driven units — eats through tough rock formations under 10,000 lbs. pulldown pressure at speeds from 40 to 250 rpm. If necessary, a hard-hitting down-the-hole drill can quickly be substituted for the rotary bit to drill extremely hard rock formations. A Le Roi 25 hp two-stage air

compressor provides ample air for powering the down-the-hole drill and cleaning out hole... or is available in single-stage where only rotary drilling is necessary.

The self-propelled LRD-2 is available either on crawler or tire mounting and with either gasoline or diesel power unit. A whole list of extra equipment is available to ease or speed drilling, including lights for night-time operation, a mounted bit grinder, air hoist, breakout tongs, water injection system, etc. . . all detailed in Specification Sheet AT-146. Write for your copy.



# DEEPHOLE DRILL RIGS!

rotary blasthole ~~down-the-hole~~ drills

## THE LRD-3

Here's the *big rig* . . . completely self-contained for putting down hole as large as 7 $\frac{1}{8}$  in. to 100 ft. depth!

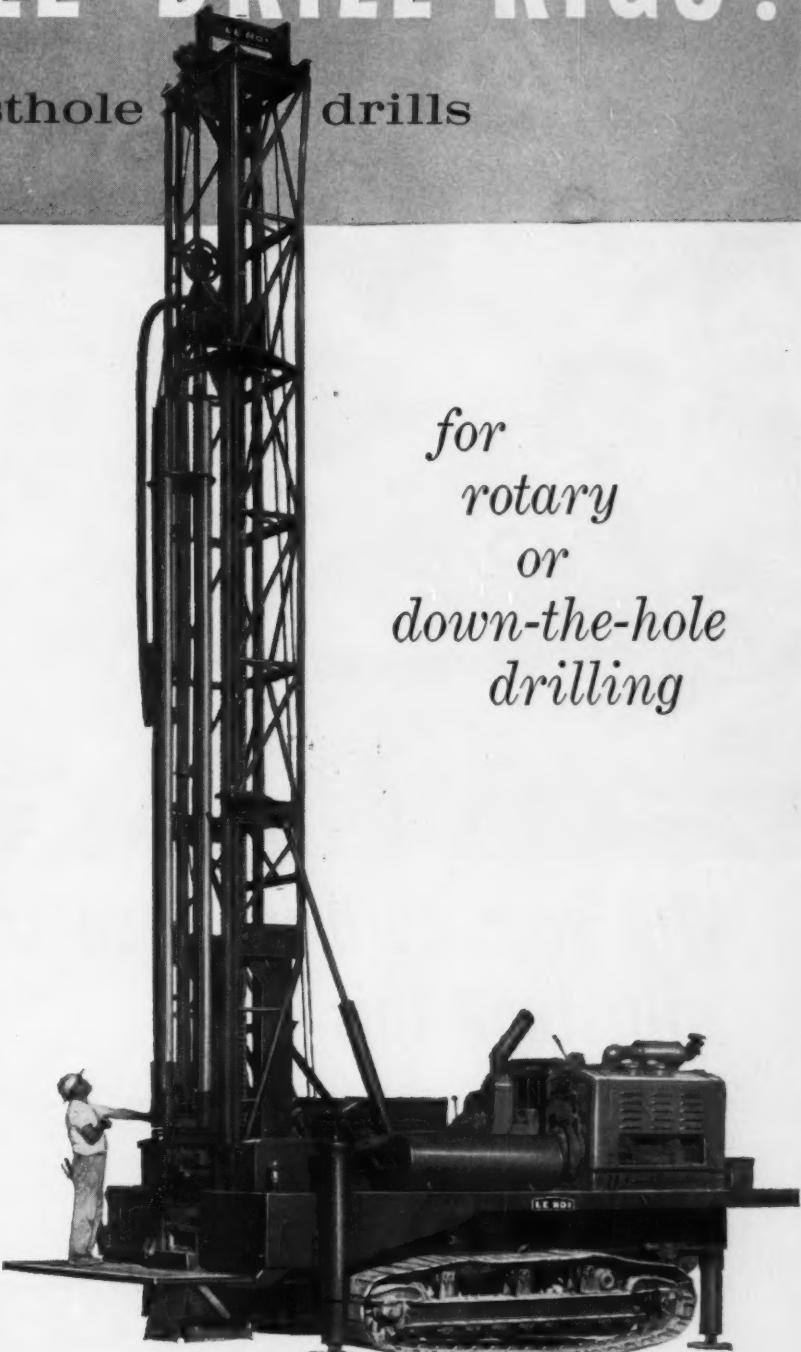
The LRD-3 is available with either crawler or truck mounting. An enclosed cab can be furnished to provide all-weather protection for the operator while drilling. All controls are conveniently grouped for easy operation and good visibility.

The traveling head design of the LRD-3 provides positive mechanical power without excessive torque loss under heavy pulldown, and permits easy control in making up and breaking down drill-rod. Every function of the unit is designed to speed productive drilling and keep the operator making hole. Leveling, raising the mast, and even the automatic drill pipe magazine are hydraulically controlled for speedy operation. A powerful dust collector traps cuttings and blows them well away from the unit.

An extra-sturdy 4-speed chain-hydraulic pulldown puts up to 30,000 lbs. of pressure on the bit of the LRD-3. A rugged dual-range transmission provides rotary speeds from 9 to 168 rpm in a selection of 10 forward and 2 reverse speeds.

Where needed, the rotary bit can be quickly changed for a powerful down-the-hole drill. A Le Roi 100 hp dual-manifold air compressor provides plenty of 100 psi air for punching through tough rock with the down-the-hole drill, or it can be set to deliver 625 cfm of 40 psi air for fast, efficient removal of cuttings in rotary operation.

The LRD-3 comes complete with a hydraulically operated magazine with capacity for four 20 ft. drill pipes, and can be equipped with optional convenience equipment similar to the LRD-2. Specification Sheet AT-147 describes the unit in detail, with complete spec information. Send for a copy.



for  
rotary  
or  
down-the-hole  
drilling

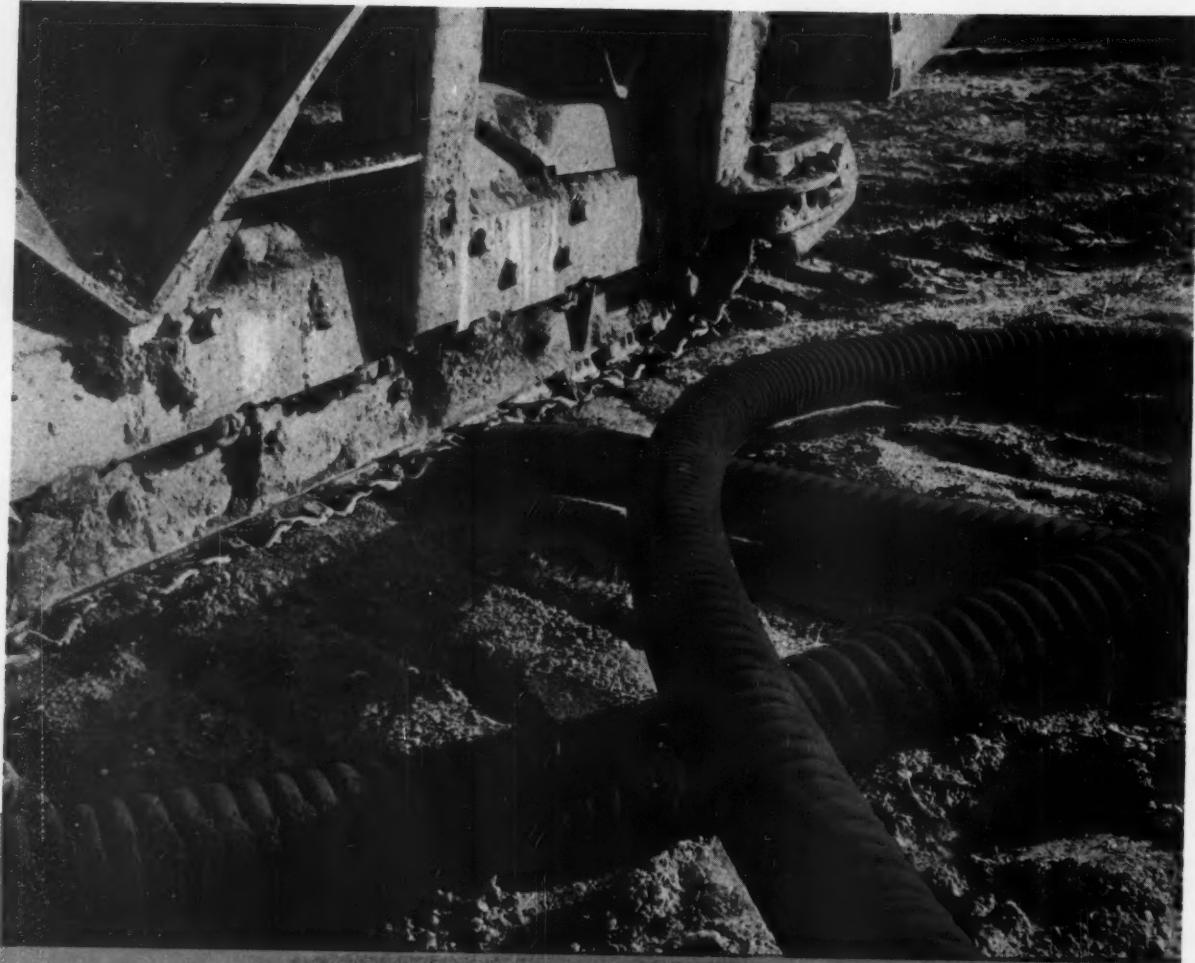


**LE ROI**

division of Westinghouse Air Brake Co.

Sidney, Ohio

Circle 63 on Reader Service Card



## *Will your cord inserted suction hose withstand this TEN TON PUNISHER?*

This Acme-Hamilton crushproof "Cord-Flex" suction hose was run over five times by a ten-ton tractor—yet immediately recovered its shape and resumed efficient suction operations. The same hose was then subjected to a mercury vacuum test in excess of recommended pressure—still no sign of collapse!

Unlike competitive fibre cord reinforced suction hose, Acme-Hamilton uses a rubber bonded special formulated plastic cord in its construction which gives this hose its remarkable recovery action. Its pure gum tube and unique construction makes "Cord-Flex" a multi-purpose hose. It can be used

not only for contractor operations but also in handling mild acids, alkalies, abrasive slurries, etc. If the hose you now use will not meet this grueling test, specify the easier handling and flexible "Cord-Flex" suction hose when giving your next order, or write Acme-Hamilton, Dept. DFL.



### Acme-Hamilton

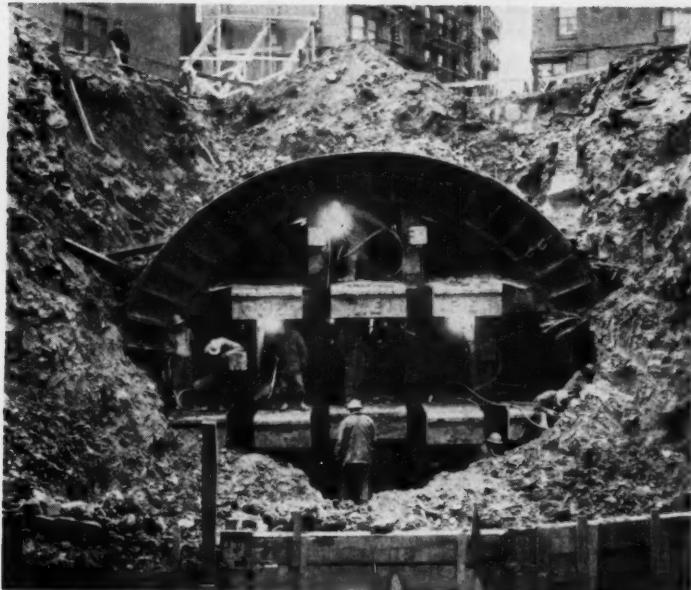
MANUFACTURING CORPORATION, TRENTON 3, N. J.

Industrial and Automotive Rubber Products Since 1870

ATLANTA • CHICAGO • DETROIT • HOUSTON • SAN FRANCISCO • INDIANAPOLIS  
NEW YORK • SEATTLE • MILWAUKEE • PITTSBURGH • SALT LAKE CITY • LOS ANGELES

Circle 64 on Reader Service Card

## **Construction News in Pictures . . .**



### **Zig-Zag Beams**

The joist-like beams for this New Jersey warehouse were fabricated from 14-in. Jones & Laughlin I-beams by Elizabeth Iron Works. A 1,000-ton press bisected each beam in a serrated line. Then the two sections were joined by welding the flat ends of the serration, thus deepening the beam and greatly increasing strength-to-weight ratio.

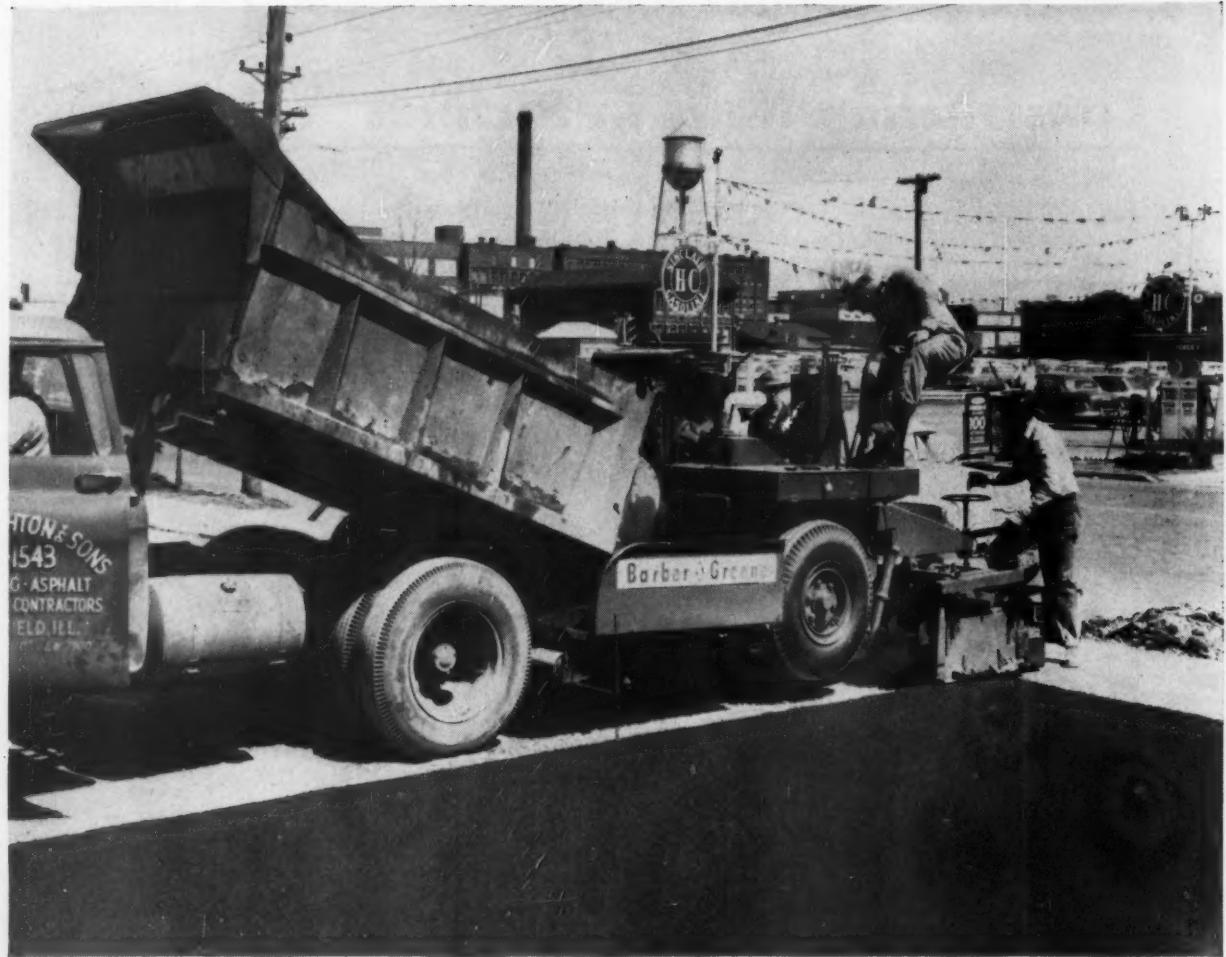
### **Subterranean Progress**

Perini Corp. sandhogs on the \$29-million Lt. Callahan Tunnel in Boston work from platforms on three levels within this 31-ft-dia steel tunnel shield. Driven 32 in. at a time along a 4,800-ft path, the 240-ton shield was shoved forward by 28 200-ton hydraulic jacks. The shield is 16 ft 8 in. long at the bottom and 3 ft longer on the top to protect the sandhogs during excavation.



### **Rapid Transit**

To erect three 60-ft transmission towers in a rugged Southern California canyon, Owl Truck and Construction Co. turned a Hiller 2E helicopter into a flying ready-mix truck. The Whirley hauled 18½ yd of concrete  $\frac{3}{4}$  mi for foundations. Three canvas bags carried the loads. While one was airborne, another was washed, and a third was being charged with 5 cu ft of concrete.



*Paving contractor's report on 873:*

# "Helped us get 25% more work in slack time"

Don Broughton, Springfield, Illinois, tells how a compact Barber-Greene 873 Finisher proved a king-sized profit maker by increasing business 25% for P. H. Broughton & Sons:

"The bulk of our asphalt paving contracts have always been on state highway jobs. And the slack time—between projects, on week-ends, even hold-ups while projects were in progress—was overhead

we had reluctantly lived with as inherent in our business.

"But this amazingly versatile and highly portable Model 873 is the machine that helped us convert slack time into 25% more business—doing all types of paving jobs."

Contractors who have operated with the 873 have found its compact design the economical answer to pave driveways, parking lots, city streets etc. with highway quality surfaces.

These features make the 873 the most profitable compact finisher: paves on crawlers to 50 f.p.m.; travels on pneumatic tires to 30 m.p.h.; basic 8' paving width variable in 3" increments from 6-12'; full-width tamping for maximum compaction; 8' travel width; automatic leveling; simple, positive control with single "joystick" steering lever; hydraulic folding hopper; easy, accurate thickness control; and fast crown adjustment while paving.

Let your Barber-Greene Distributor show you the 873's profit advantages—whether you are just starting in business or are looking for paving equipment that means extra business in slack time.



HIGHWAYS



DRIVEWAYS



GARAGES



HIGHWAY SHOULDERS

**paves on crawlers...  
to 50 f.p.m.  
travels on rubber  
to 30 m.p.h.**



TOWING: TO 30 MPH



CITY STREETS



PLAYGROUNDS



SHOPPING CENTERS



**NEW BARBER-GREENE SA-40 FINISHER  
HEADS NO. 1 FINISHER LINE**

The newest star performer in the five-model Barber-Greene Finisher line lets you profit from all the latest advances in finisher design. Your distributor will show you all the exclusive features of this production king, service and maintenance miser, and new symbol of automatic operation and quality paving—the General Duty SA-40.

Whether you pave driveways or super highways or both, there is a Barber-Greene Finisher or Road Widener in a size and production range to deliver maximum economy and profitability for you.

**World's No. 1 Manufacturer of Asphalt Paving Equipment**

Representatives in Principal Cities of the World

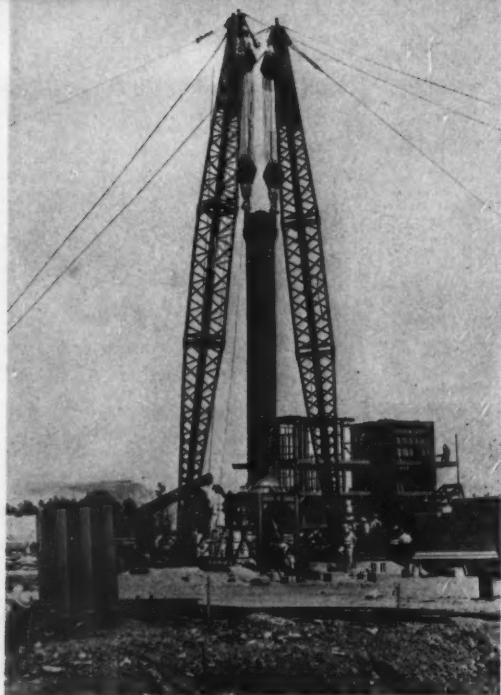
**Barber-Greene**

Main Office and Plant AURORA, ILLINOIS, U.S.A.  
Other Plants: DeKalb, Milwaukee, Detroit, Canada, England, Brazil, Australia



CONVEYORS • LOADERS • DITCHERS • ASPHALT PAVING EQUIPMENT

Circle 67 on Reader Service Card



## CONSTRUCTION NEWS IN PICTURES . . . *continued*

### A 100-Ton Lift

Two 150-ton Bigge gin poles and a double-drum Skagit hoist powered by a 140-hp engine combine to lift a reactor vessel weighing over 100 tons onto its pedestal at Hercules Power Co.'s new methanol plant near Richmond, Calif. Bechtel Corp., engineers and contractors for the huge project, is now putting the finishing touches on the plant.

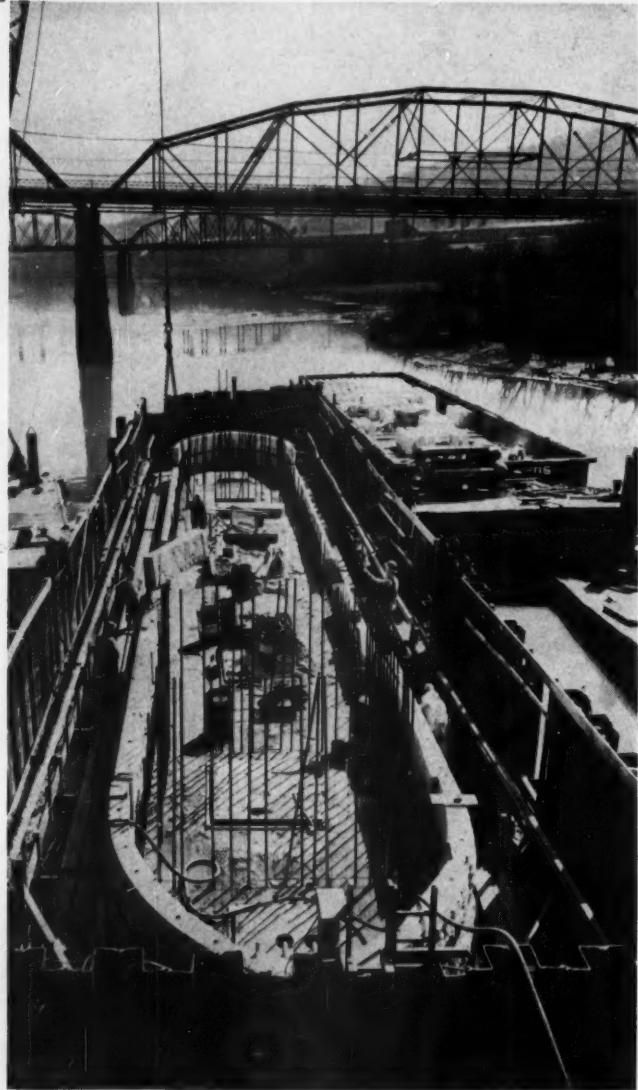


### Moving a Tunnel

Near Rapid City, S.D., a 70-ton section of tunnel liner for a missile base installation is loaded on a specially designed, double trailer truck by a 90-ton-capacity P&H 890-TC truck crane. Prime contractor at the \$48-million Ellsworth Air Force Base project is Leavell-Scott & Associates of El Paso, Tex. The tunnel will join a complex of three Titan missile silos that are 40 ft in dia and 160 ft deep.

### Working in the Dry

A barge-mounted crane places granite facing stone on one of two river piers that will carry G'enwood Bridge across the Monongahela River at Pittsburgh, Pa. Dravo Corp holds a \$817,968 contract to build two river piers and two land piers. The river piers are 115 ft long and 20 ft wide. They will rise from 20 ft below pool to 10 ft above. Topping each pier will be two tapered rectangular columns that will support the bridge's steel superstructure.



# BONE DRIED and BOTTOMED OUT IN JUST 10 DAYS



Lift Station No. 5, Pinellas Park, Fla.  
Contractor: Atlas General Construction Co., Inc., Largo, Fla.  
Engineers: Russell & Axon, St. Petersburg, Fla.

With a two-stage Moretrench Wellpoint System eliminating 22' of water, the contractor moved ahead rapidly in excavating this deep lift station to grade.

Fred O. Harrell, President of Atlas General Construction Co., Inc., writes us:

"I know that a great deal of our success with this project can be attributed to your equipment and the excellent service your firm has given us. We want you to know we appreciate your fine cooperation."

**Cooperation . . . service . . . success — You can count on them all when you pump with Moretrench!**

## **Moretrench Corporation**

389 Main Street  
Hackensack, N. J.  
Hubbard 9-7676  
New York Tel.: CO 7-2283

4900 S. Austin Ave.  
Chicago 38, Illinois  
PORTSMOUTH 7-4212

7701 Interbay Blvd.  
Tampa 9, Florida  
TAMPA 61-1871

315 W. 25th St.  
Houston 8, Texas  
UNDERWOOD 4-7774

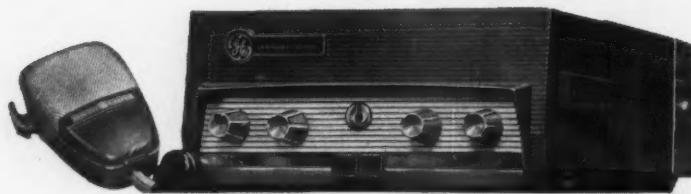
Rockaway  
New Jersey  
OAKWOOD 7-2100

WESTERN REPRESENTATIVE: Andrews Machinery of Washington, Inc., Seattle 4, Washington

CANADIAN REPRESENTATIVE: Geo. W. Crothers Limited, Toronto, Ontario

BRAZILIAN REPRESENTATIVE: Oscar Tavares & Co., Ltd., Rio de Janeiro

# A General Electric Two-Way Radio to solve every communication need



## General Electric's TPL: *Extra-feature performance leader*

General Electric's Transistorized Progress Line offers highest performance . . . plus standby battery drain so low that you never have to turn off your TPL mobile unit . . . and a size that fits in more places, in more different positions, than any other two-way mobile radio you can buy today.



## The Progress Line: *Proven performance leader*

Since 1955 General Electric's tubed Progress Line has served customers with economical, high power, high reliability two-way radio. A wide range of models satisfies every mobile communication requirement. For field-proved performance and low maintenance cost even under the most rugged conditions, specify the Progress Line.

## The General Electric Pacer: *Compact economy leader*

The General Electric Pacer gives you every advantage of quality FM communication for limited range applications at the exceptionally low price of \$419.00 . . . and the lowest battery drain of any mobile radio in its class means important additional savings for you.



General Electric two-way mobile radios — each the leader in its class — are designed and engineered to satisfy your specific requirements. For the range you want and the high quality reception you need, check first with a G-E communications consultant. You'll find him listed under "Radio Communication" in the Yellow Pages of your classified telephone directory. Or write: General Electric Company, Communication Products Department, Section 5971, Lynchburg, Virginia.

**GENERAL**  **ELECTRIC**



LOOK AT ONE  
OF THE FINEST  
**FREEWAY**  
**PLANS**  
IN THE  
U.S.A.



**GULF MAKES THINGS RUN BETTER!**



**North Loop Cloverleaf.** Motorists on the North Freeway and North Loop will intersect at this massive interchange. It's about 4 miles north of Houston's downtown complex.

**West Loop Interchange.** This four-level interchange is part of the Southwest Freeway. By 1962, it will carry traffic to and from the surrounding apartment sections and subdivision.

**North Loop.** A "sheep's foot" roller compacts the earth at this North Loop project. The truck delivers Gulf fuels and lubes to equipment at the job site.





## Houston's new urban freeway system

The ultimate goal: a 244-mile freeway system (70 miles have already been opened to traffic). Total cost: \$435-million. This plan will form a complete inner and outer loop around Houston. Nine freeways will poke out from the city like spokes on a giant wheel—similar to ancient Rome.

From downtown Houston, motorists will buzz through multi-layer interchanges, over modern steel bridges and onto elevated expressways to reach suburban homes in minutes. Completion date: late next year.

At the present time, construction is heaviest along three roads (check map): Interstate Highway 45, the North Freeway which leads to Dallas; Texas, U.S. 59, the Southwest Freeway which will shoulder residential traffic; and Interstate Highway 610, the North Loop—a badly needed bypass for industrial traffic on the Port-of-Houston side.

During 1959 and 1960, a total of 38 different jobs were contracted on the Houston freeway system. Gulf® fuels and lubricants were used on no less than twenty-four of these contracts (quite a record).

By the end of 1960, freeway contractors had purchased 2,338,000 gallons of Gulf diesel fuel, 2,060,000 gallons of Good Gulf® gasoline, 101,000 gallons of Gulf motor oils, and 36,000 pounds of Gulf greases. These vital statistics prove that Gulf products were really in the thick of this tremendous project.



1. Southwest Freeway on Texas, U.S. 59
2. West Loop Interchange on Interstate Highway 610
3. North Freeway Inner Loop on Interstate Highway 45
4. North Loop on Interstate Highway 610 and Texas, U.S. 59
5. North Freeway on Interstate Highway 45
6. North Loop Cloverleaf on Interstate Highways 610 and 45
7. Cloverleaf on Interstate Highway 10



Learn about Gulf service on the next page

## Gulf Sales Engineers serve 24 major contractors on the new Houston freeway system

In addition to top performance from Gulf fuels and lubes, our contractor-customers get the helpful and money-saving counsel of Gulf Sales Engineers.

A Gulf Sales Engineer is always ready to assist in the proper selection of types and grades of fuels and lubricants. He'll also help work out a simplified lubrication program to avoid unnecessary lube storage and handling on the job. Furthermore, he'll provide practical assistance on any technical problem that involves a petroleum product.

When you combine Gulf service with Gulf products, it's not hard to figure out why these Houston freeway contractors depend on Gulf.

Brown & Root, Inc.  
Gulf Bithulithic Co.  
F&C Engineering Co. & Inc.  
John G. Holland Company  
Trinity Construction Co., Inc.  
F. M. Reeves & Son  
Elmer C. Gardner, Inc.  
Bane & Massingale, Inc.  
M&N Construction  
M. C. Winter's Co.  
Ross Anglin & Son  
William Bros. Construction Co., Inc.  
San Jancinto Equipment  
Austin Roads Co.  
Austin Bridge Co.  
Jones G. Finke

### *A final reminder for your next project*

Give us the opportunity to serve you, and see for yourself how Gulf makes things run better! Just call a Gulf Sales Engineer at your nearest Gulf office. Or write directly to Gulf Oil Corporation.



**GULF OIL COMPANY**  
Dept. DM, Gulf Building  
Houston 2, Texas

**GULF MAKES THINGS RUN BETTER!**



Prime Contractor, J. D. Nipper (left) and James Mason, General Superintendent (center), M&N Construction Company, and Bill Taylor, Gulf Houston Area Manager. Near by, a dozer gulps Gulf diesel fuel from a handy 1,000-barrel trailer tank.



Prime Contractor, John G. Holland, Jr. (right), John G. Holland Company, and Jeff Bolling, Gulf Sales Engineer. This is the Post Oak Interchange on the Southwest Freeway. Those giant bridge columns will soon support a modern expressway.



**CHICAGO  
CONTRACTOR  
ADDS 5th  
"DYNHOE"  
TO FLEET**



SAYS  
KILBAR  
ELECTRIC:

**"DYNHOE  
FAR EXCELS  
ANYTHING WE'VE  
EVER SEEN  
OR OWNED"**



MASSIVE FOUNDATION FRAME

- Like other "DYNHOE" fleet owners, Kilbar Electric Company, Chicago, Illinois, proves its acceptance of Hy-Dynamic's completely integrated Loader-Tractor-Backhoe unit by placing still another "DYNHOE" order. Four other Kilbar "DYNHOE" units have already proved to be real profit makers in the field.

Kilbar has found that "DYNHOE" construction, strength, power, speed, performance and reliability are prime factors which so clearly distinguish the "DYNHOE" from all standard tractors to which loader and backhoe attachments have merely been added.

Kilbar considers the massive "DYNHOE" foundation frame fundamental to its performance—to its freedom from breakdowns—to its continuous dependability. Only this design can provide the strength and stamina so vital to successful Backhoe performance.

**Basic "DYNHOE" Features Include:**

- Exclusive "Integrated Design" ● Extremely Heavy Duty Construction ● New Operating Advantages ● Oversize Pins and Bushings Throughout ● Fast Swinging and Digging ● Power Steering ● 3-Speed Transmission with Torque Converter and Power Shift Forward and Reverse ● Extra Heavy Duty Buckets
- Correctly Balanced Weight Distribution ● Heavy Planetary Rear Axle ● 65 Net H.P., 6 Cylinder Engine

The "DYNHOE" Loader-Tractor-Backhoe is distributed by leading Construction Equipment Distributors. For further details on "DYNHOE" and the name of your nearest Distributor write:

**DYNHOE**

MANUFACTURED BY  
**THE HY-DYNAMIC CO.**  
417 SKOKIE HIGHWAY, LAKE BLUFF, ILLINOIS  
CEDar, 4-5400



New enamels made with *M50* pigment give equipment better...longer protection...control under-the-film rusting.

## New! One-coat equipment enamels with built-in rust inhibition...

### **keep on fighting rust even when damaged in service**

Now, for the first time, you can have the rust inhibition of a primer and the durability of a finish coat, combined in a single coat of enamel.

And what is more, the paint can be tinted to match most standard equipment colors.

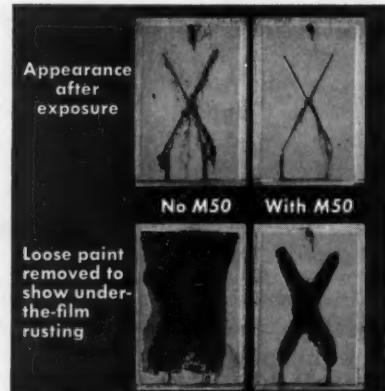
What gives these new one-coat enamels their exceptional properties is a unique new type of pigment, *M50*® basic lead silico chromate. In this pigment, the active ingredient is basic lead chromate solidly fused to an inert core. Fused lead chromate has not only exceptional rust inhibiting action, but also superior resistance to weathering.

#### **Greatly inhibits under-the-film rust creepage, too**

As you've probably noticed, when ordinary enamels are nicked or damaged in service the rust that starts spreads under the paint in no time. As this rust creepage progresses, paint flakes off to open the way for further corrosion.

Exposure tests (see photograph at right) at National Lead Laboratories show that this damage is very sharply reduced when *M50* pigment is in the enamel.

**Before you order paint again . . . look into these unusual new enamels.** They can be made up by your regular paint suppliers in nearly all standard equipment colors.



How tests were made—Test enamels were applied over clean, cold-rolled auto body steel, scored, and then exposed to 5% salt fog for 300 hours. The two panels at top permit you to compare appearance of enamels after exposure. The two panels at bottom have loose paint removed so that you can compare the true extent of rust creepage under each enamel. Note also, the greater film strength shown by the *M50* enamel.

**M50**



an *OFCr*® Pigment...A Development of

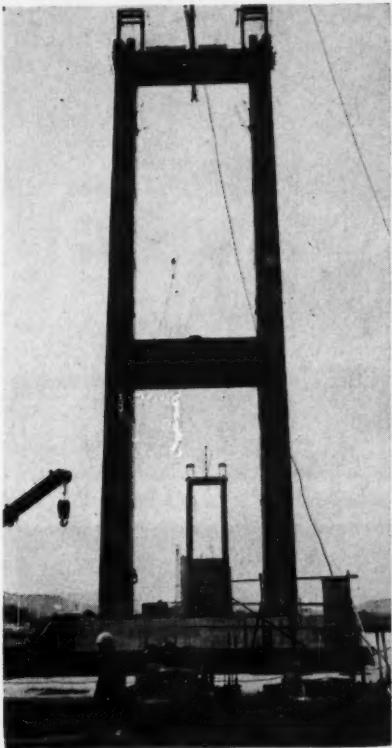
**National Lead Company**  
General Offices: 111 Broadway, New York 6, N.Y.

Circle 76 on Reader Service Card

## **Construction 'Round the World...**

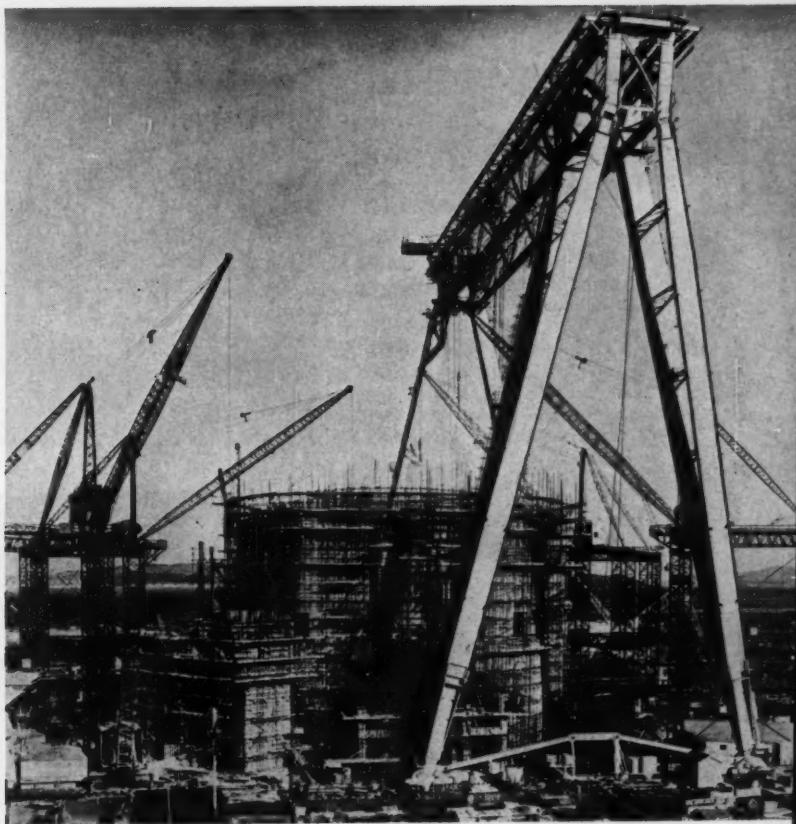
### **In India**

Sidewalk superintending has the same fascination in India as it has in this country. At right, a group watches with interest as a big Cleveland trenching machine digs the ditch for a section of a 720-mile-long crude oil pipeline. When completed late next year, the line will have crossed a total of 78 rivers, including one that is a mile wide.



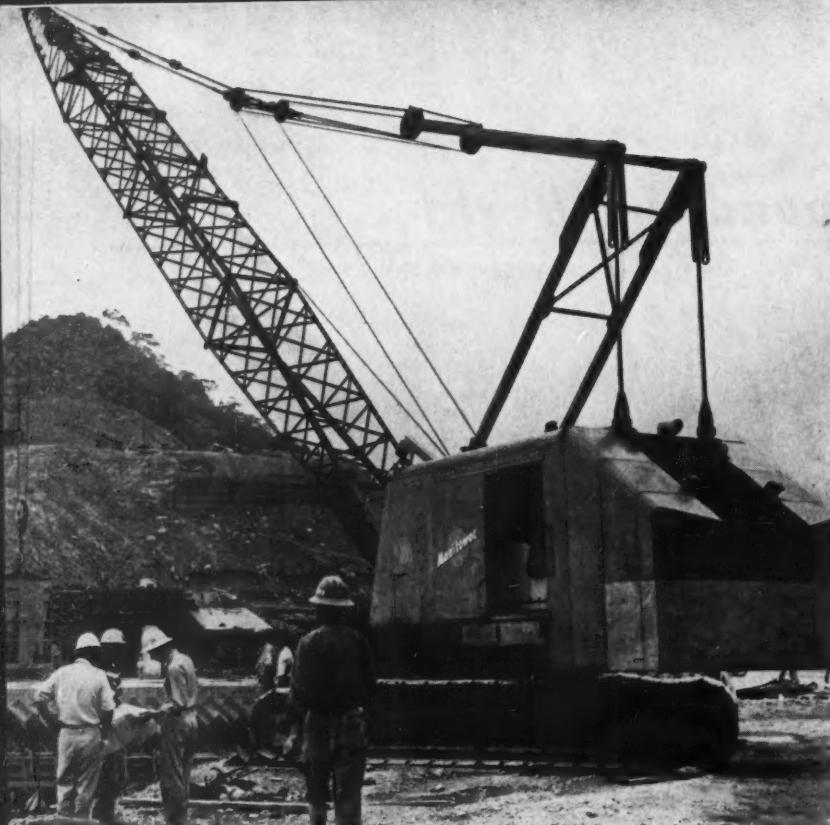
### **In Japan**

Crews of the Hitachi Shipbuilding & Engineering Co. get ready to string cables for what will be the longest steel suspension bridge in the Orient when completed next year. It will connect two cities on Kyushu Island. The two main towers of the structure reach 280 ft above sea level and the main suspension span will be 1,200 ft long. More than 19,000 tons of steel will be needed.



### **In Scotland**

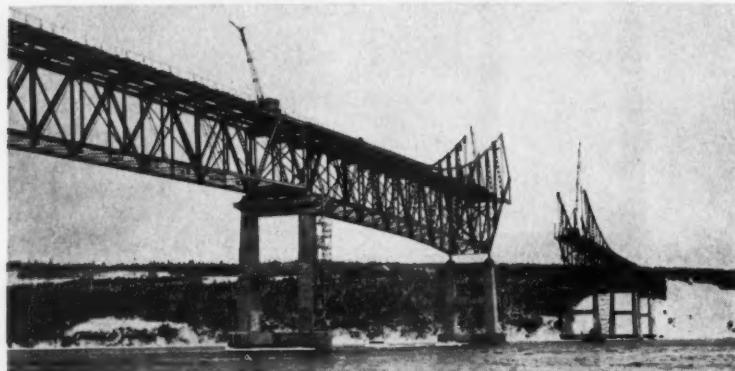
What must rank as one of the world's largest gantry cranes is shown straddling a section of an atomic power plant now under construction. Made by Applevage, a French company, it stands 135 ft high and has a lifting capacity of more than 300 tons. The giant rig moves along tracks on 32 wheels. A crane travels on rails along its crossbrace.



## CONSTRUCTION 'ROUND THE WORLD ... *continued*

### In Formosa

A Manitowoc 3900 crane is shown spotting a concrete bucket as Chinese crews work at one of the world's most difficult sites. More than 9 million yd of rock fill will be handled before Shihmen Dam is completed. Sponsored by the Nationalist Chinese government, it will reach a height of 436 ft, making it one of the Orient's largest.

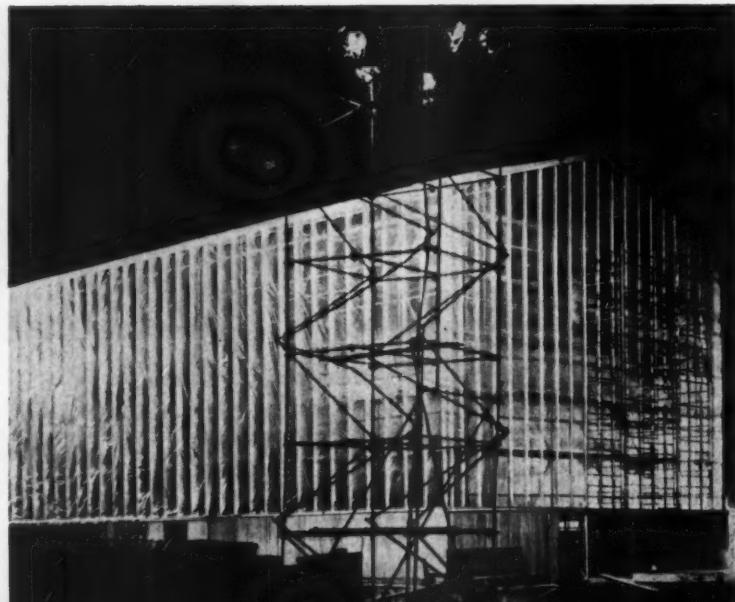


### In Canada

Dominion Bridge crews working on Nova Scotia's Big Bras D'Or Bridge are fighting to make up time lost because of heavy spring snows. More than 3,400 tons of steel will go into the 2,450-ft structure. Two 12-ton stiffleg derrick travellers with 110-ft booms are erecting steel. The main span is a 1,205-ft three-span tied-arch truss.

### In England

Because the contractor works around the clock, in good weather and in bad, this control room for a new power plant will be completed in less than half the scheduled time. The photo shows the structure earlier this year, when it was protected from bad weather by Visqueen polyethylene film. Scaffold-mounted floodlights enable crews to work through the night.



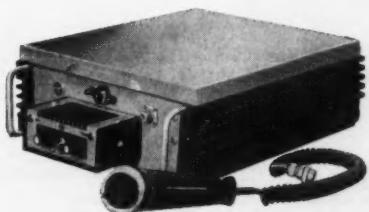
# EYE OPENER!



## The facts about transistorized 2-way radio

(FROM THE LEADER IN RADIO—RCA)

If you're cautious about specifying transistorized 2-way radio for your business . . . if you don't have full facts on the newest developments in radio communications equipment . . . you'll want to read this "Best Seller" by RCA. It's a fact-filled booklet that delves inside the "LD" (Low battery Drain) Mobile Radio; shows you why the "LD" gives you all the advantages of transistorization at a price comparable to all-tube equipment. Transistorized—yet easily serviced. Miserly in power consumption—yet generous in performance.



The Most Trusted Name in Radio  
RADIO CORPORATION OF AMERICA

JULY, 1961

### Check These Important Sections:

- How 2-Way Radio Finds "Hidden" Profits
- Inside Story on the "LD"
- Why Transistors?
- Nationwide Servicing

Read all about 2-way radio. You'll see why the new "LD" is today's best buy! Send coupon for your copy of this informative booklet.

RADIO CORPORATION OF AMERICA  
Telecommunication Center, Dept. T-203  
Meadow Lands, Pa.

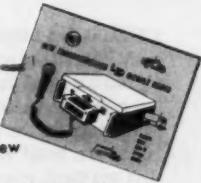
Please send me FREE BOOKLET on the new "LD" Mobile Radio.  
 Have RCA Communications Specialist contact me to discuss today's best value in 2-way radio.

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

COMPANY OR ORG. \_\_\_\_\_

ADDRESS \_\_\_\_\_ PHONE \_\_\_\_\_

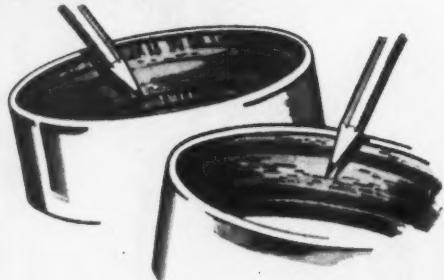
CITY \_\_\_\_\_ COUNTY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_



Circle 79 on Reader Service Card



**DISTRIBUTOR DAN , the SKF bearing man, shows**  
**HOW TO PROTECT YOUR BEARINGS**  
**IN THE FIELD**



**DIRT AND MOISTURE DID THE DAMAGE.** The bearing ring on the left failed prematurely because fine dirt particles acted as an abrasive, causing wear. The bearing on the right had to be replaced because of the abrasive action of rust.

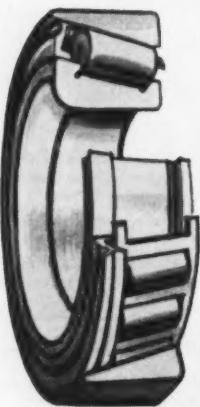


**LOVE THAT LUBRICANT** and those oil cans and grease guns! Clean oil and grease will carry dirt out when they purge the old lubricant. Whereas, dirty oil and grease carry dirt with them into the bearing. So keep your lubricating equipment clean and don't use lubricants that have been exposed to dust and dirt.

**START WITH PROPER STORAGE.** New bearings come wrapped in dustproof paper. If this wrapping is opened or torn, wash the bearing. Use a clean pail of kerosene or light oil. Dry bearing with compressed air, then dip in anti-rust compound, rewrap and box.



**SAVE YOURSELF SEAL TROUBLE.** Replace bent or worn seals (which allow dirt to enter) when you install or inspect bearings. You can now get tight, effective double-lipped TySeal tapered roller bearings that fit exactly the same space as standard unsealed tapered roller bearings.



**A BEARING IS A BARGAIN!** For relatively little money you get a bearing that's made of fine steel which has been heat treated, machined, polished, tested and checked over 100 times. Treat your bearings right and they'll give you the thousands of hours of operation for which they're engineered.

**BEAR DOWN ON BEARING DOWNTIME—RELY ON THE  
TECHNICAL SERVICE OF AUTHORIZED SKF  
DISTRIBUTORS**

**SKF**

MOTION ENGINEERING



*Advanced ball and roller bearing technology*

6113

Circle 80 on Reader Service Card

# **Construction Methods**

AND  
EQUIPMENT

JULY, 1961

VOLUME 43 • NUMBER 7

HENRY T. PEREZ, Editor



# **TOOLS OF MAINTENANCE**

## **EQUIPMENT MAINTENANCE GUIDE**

(continued from front cover)

Maintenance tools won't pour concrete or carry a payload, but they do help keep money-making rigs on the go.

When was the last time you took a long hard look at your maintenance practices and tools? Do you know what's available today to save time and money in the all-important area of service and repair?

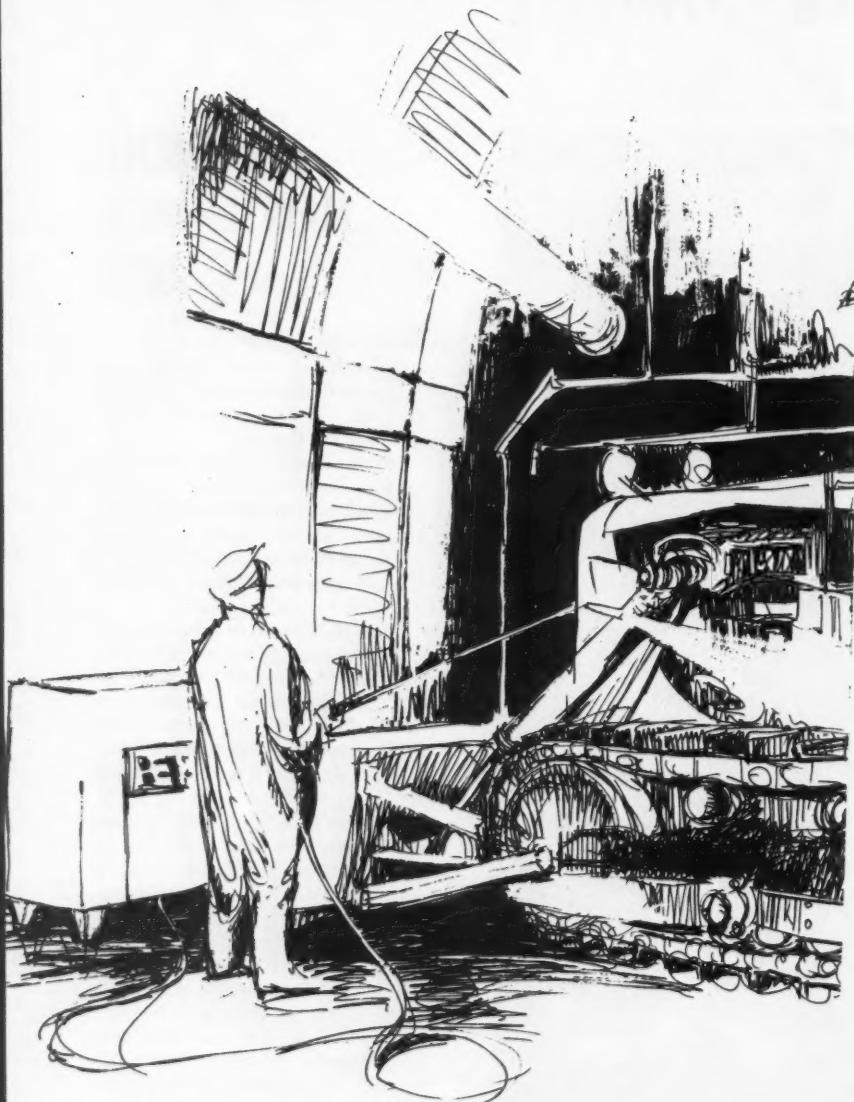
Manufacturers of construction machinery constantly make improvements in their products. So do the makers of maintenance tools. It's silly to keep your equipment fleet up to date, then try to maintain it with outmoded tools.

If you don't think there's been much improvement recently in construction machinery, take a look at CM&E's exclusive comparative specification charts beginning on Page 147. There have been literally hundreds and hundreds of changes in the past year.

While most equipment owners try to keep abreast of these improvements, too many ignore the equally impressive advances in the field of maintenance.

You operate efficiently and profitably only when your service and repair tools are as modern as your equipment fleet.

It is for these reasons that this issue is devoted to the important Tools of Maintenance.



# **Cleaning Saves Valuable Shop Time, Pays for Itself**

**BECAUSE IT SAVES** valuable shop time, smart contractors have come to realize that in the long run it pays to clean equipment before servicing it.

Mechanics say it takes anywhere from 15 to 35% longer to repair a rig that is not cleaned properly before they start to work on it. They also agree that a clean machine gives them a better chance to do a good job.

When a machine comes into the maintenance shop for servicing, it usually is cleaned either with steam or with water jetted under pressure. When a component is disassembled, parts are dunked in hot or cold soak tanks containing chemical solvents. And many shops also have specialized cleaning tools to handle such jobs as preparing a rig for painting.

But the steam cleaner is the workhorse of cleaning tools. There are two types available:

The vapor type of cleaner produces steam under thermal pressure alone. Operating pressure is limited to about 100 psi. Because they cannot blast away heavy accumulations of dirt and grease, vapor type steam cleaners handle only light cleaning.

The second type of steam cleaner combines thermal and hydraulic pressure at the nozzle. These heavy-duty cleaners are equipped with a pump that increases operating pressure to 300 or 400 psi.

A high-pressure-type cleaner is considerably more expensive than a smaller vapor-type unit, but its high operating pressure makes it much more effective for cleaning heavy equipment.

Several manufacturers offer high-pressure steam cleaners equipped with pumps. The 3500 series Hypressure Jenny and the Malsbury 250 HPC steam cleaners are among the most popular cleaning tools with contractors. Portable and stationary models are available, and they can be gas-fired or oil-fired.

Most models provide five different cleaning actions: high-pressure steam, high-pressure hot water, high-pressure cold water, low-pressure steam, and low-pressure water.

Contractors make use of these cleaning actions in different ways. Many first blast caked dirt with high-pressure cold water to save fuel, then remove oil and grease with high-pressure steam. Some contractors first spray a diesel oil emulsion on crawler assemblies and other heavily caked parts to loosen oil and grease-encrusted dirt. After the emulsion soaks into the dirt for several hours, they clean with high-pressure hot water.

Some shops provide an enclosed room for all-weather steam cleaning. Perini Corp. of Framingham, Mass., installed a large stationary steam cleaner in a shop room that opens on the yard. Perini can clean equipment in the yard or bring it into the shop, as weather conditions dictate.

L. G. DeFelice & Son of New Haven, Conn., uses a smaller, two-gun model set up near a door of its shop. Simultaneous operation of both guns enables one man to knock off caked mud and dirt with high-pressure water while another man removes grease and oil with high-pressure steam.

Steam cleaners are not the only tools that will handle primary cleaning of heavy equipment—some contractors prefer high pressure pumps. T. M. Durkin & Sons of Philadelphia recently replaced an old steam cleaner with a high-pressure Aquablast washer manufactured by the John Bean Div. of Food Machinery and Chemical Corp. This unit produces a jet of water with up to 600-psi pressure behind it.

Powered by a 10-hp electric motor, the high-pressure pump has an 80-gal reserve tank that Durkin fills with water from the city mains. Three 2 1/4-in. pistons force water under pressure through a jet nozzle, which is adjustable to provide a jet blast or a fog spray.

The hundreds of parts from engines and other disassembled components require a different type of cleaning.

Shop-built cold tanks are still the mainstay for cleaning parts, but many contractors are turn-

ing to heated tanks to speed cleaning. V. N. Holderman & Sons Inc. of Columbus, Ohio, added a gas-fired heater to its 6x12-ft steel tank to degrease parts in a boiling solution. Compressed air fed into the tank agitates the alkali solution and frees grease particles.

Other contractors are buying commercially available hot tanks with mechanical agitation. Perini has equipped its parts cleaning room with a 1,250-gal Magnus heated tank as well as a Clayton model 120 steam cleaner for engine work. The tank holds a large basket of parts that are agitated up and down in a solution of Magnus 61-RS solvent.

There are several other types of parts cleaning machines on the market. Storm-Vulcan, for instance, manufactures an impeller-agitated, batch-type cleaner in a wide range of sizes. Many producers offer vapor-degreasers for light parts cleaning.

White Oak Excavators of Plainville, Conn., has modified a commercial cleaning tank by adding an electric motor to provide agitation and a spray nozzle to hand finish parts. A shop-built filter containing sawdust and sand cleans the solvent.

Sandblasting may be required to remove concrete or other hard deposits from equipment. The Sanstorm Mfg. Co., among others, offers a complete line of pressurized sandblasters. These units ordinarily are mounted on dollies. Air Placement Equipment Co. of Kansas City, Mo., and Northeast Industries, Inc., of Midland Park, N. J., produce suction-feed units with hand guns for light sandblasting.

Air hammers are useful tools for removing concrete crusts from mixer drums and paddle blades. Another versatile tool for removing concrete, rust and other scale is the Von Arx air gun manufactured by the Marindus Co. of New York City. This air-operated hand unit vibrates a bundle of needle-like steel rods that adjust themselves to the contour of any surface.



STEAM CLEANER with hydraulic pump has five different cleaning actions.

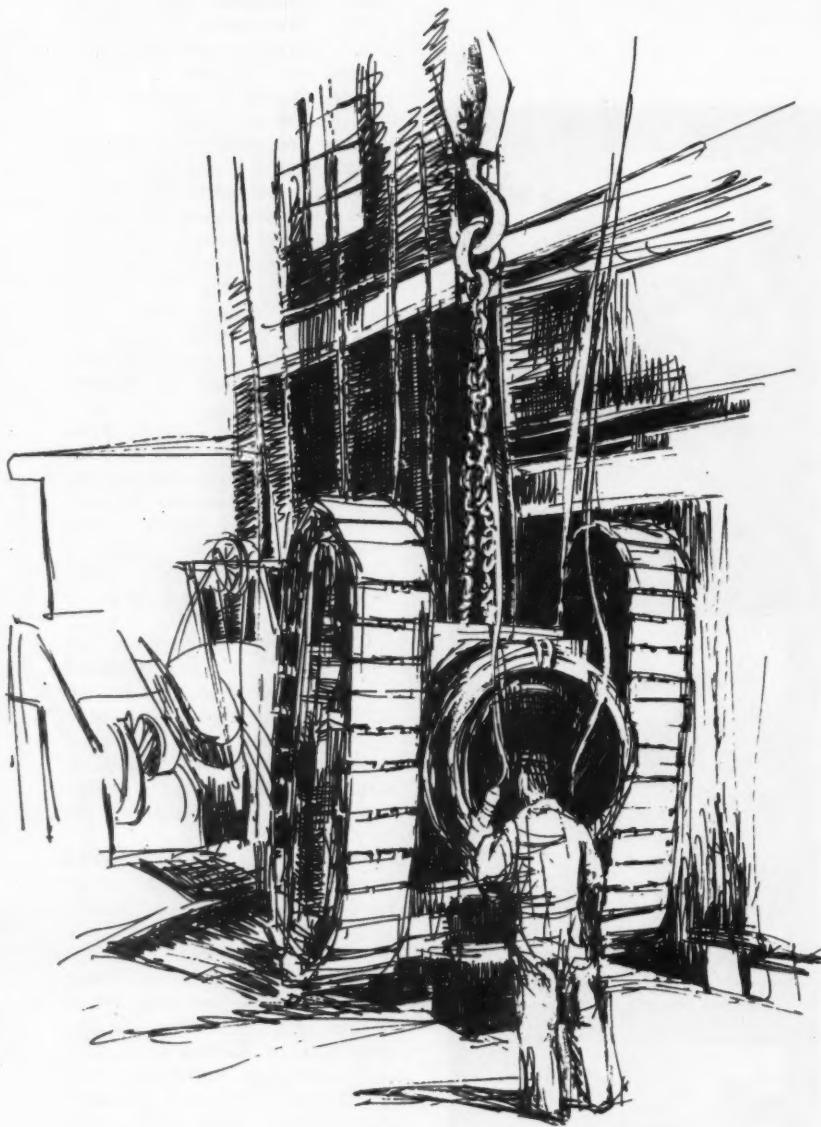


HIGH-PRESSURE PUMP blasts away dirt and grease with 600-psi water jet.



HEATED TANK cleans basket of engine parts in mechanically agitated solution of chemical solvent and water.

**Every shop needs a well-balanced team of handling tools...turn the page.**



# Balanced Tools Cut Handling Costs in the Shop

**THE MOST VITAL TOOLS** in a contractor's shop are those that lift and carry components from one work area to another. Handling of one kind or another is involved in every shop operation.

Mechanics can't perform useful work on an equipment component while it is being moved around the shop, so for the most part, handling time is lost time. It's equivalent to down-time in the field. That's one good reason why a contractor must equip his shop with fast and efficient handling tools.

There are many types of hoisting and handling equipment available on the market, and some handling tools can be fabricated in the contractor's shop. Selection of the proper tools depends primarily on the size, structural framing, and layout of the shop. The type of work done in the shop will determine the capacity and number of tools required.

Ordinarily, no single handling unit will suffice. A contractor must put together a combination of tools to meet all handling needs. He'll need tools to hoist, to move, and to hold equipment and parts.

Rigs such as overhead bridge cranes, mobile A-frames, monorails, boom-trucks and cherry-pickers will meet most hoisting and moving requirements. But many shops will find a place for fixed hoisting devices such as jib cranes and hydraulic lifts. And shop equipment must include jacks, vises, and engine stands for holding components while mechanics work on them.

The nearest thing to an all-round handling tool is an overhead bridge crane. Most contractors agree that, if the structural framework of a shop is strong enough to support one, an overhead crane is an ideal handling tool. Its versatility stems from its mobility. An overhead crane can cover an entire shop area without obstructing floor space.

Williams Construction Co. of Baltimore specified an overhead crane as a must when they built a brand-new shop last

year. They bought a 10-ton P&H Hevi-Lift traveling bridge crane for their 60x200-ft main shop building and it does practically all shop hoisting and carrying. With the overhead crane, the shop crew can pick up one end of a rear dump or a tractor and install cribbing to hold it—no jacking required.

Like most self-propelled overhead cranes, the rig is controlled by a push-button panel that hangs on a cable from the trolley. The operator moves with the rig when spotting it for a lift. Eight buttons on the panel control movement. By simultaneously pressing three buttons, the operator can move the traveling bridge, the trolley and the hook at the same time. Two-stage buttons provide a fast and a slow speed for raising and lowering the hook.

The bridge of an overhead crane can be fitted with more than one hoist. Cooke Contracting Co. of Detroit has a 5-ton capacity bridge crane built by Whiting Foundry Equipment Co. of Chicago that handles two hooks. Its single I-beam bridge holds a 1½-ton Wright chain hoist and a 3-ton Tribloc hoist.

Contractors with large shops may find that one overhead crane is not enough. Perini Corp. of Framingham, Mass., has three Manning Maxwell & Moore Load Lifter bridge cranes in their 76x382-ft main shop. One is a 20-ton rig; each of the other two has a capacity of 15 tons. Perini occasionally combines two of them for extra-heavy lifts. By teaming them up they can handle just about anything that comes along.

Manufacturers such as Robbin & Myers offer a complete line of crane components as well as completely assembled bridge cranes. A contractor can build his own overhead crane in spans up to 50 ft and with capacities up to 10 tons. He may order a single component, or everything he needs except the structural steel and drive shaft. Truck assemblies may be motor driven or hand-gear operated.

Somewhat similar to a bridge crane but limited to travel in

one direction is the monorail equipped with one or more chain hosts. Sidwell Bros. of South Zanesville, Ohio, have a typical installation. A shop-fabricated WF beam runs the length of two adjacent shop rooms and a 1-ton Chester chain hoist rides the beam. A swing-boom with a Budgit hoist supplements the mono-rail.

Monorails are ideal for assembly-line processes such as cleaning. Perini, for instance, links their engine overhaul room with a parts cleaning room next door in this way. They fabricated the rail out of I-beam stock and added a 2-ton Budgit chain hoist. The monorail carries baskets of parts into the cleaning room and lowers them into a hot-soak tank.

Perini has a similar monorail set up to service their engine testing room. This one is built for heavy-duty handling of engines. Its Yale electric hoist is powered by an electric tractor that moves it along the shop-built rail.

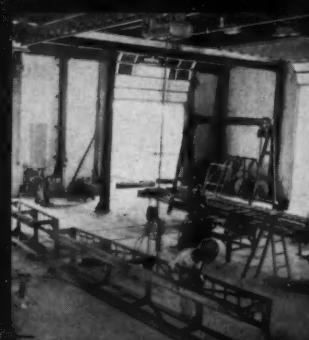
A monorail in the shop of V. N. Holderman & Sons of Columbus, Ohio, holds hand tools within easy reach of workmen. Impact wrenches, drills and lights are suspended by chains from the rails. They can be moved to any part of the shop.

One of the most common handling tools used in contractor's shops is an A-frame fitted with one or more chain falls. A-frames are usually mounted on casters so they can be moved around the shop. Many contractors fabricate the frames themselves out of scrap steel, but portable A-frames are also available on the market. Chisholm-Moore, for example, offers telescopic portable A-frames with capacities as high as 3 tons.

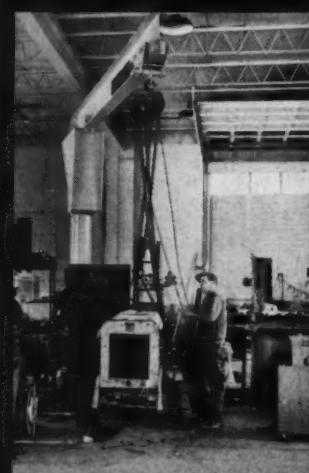
Small contractors often get along with little more than an A-frame or two in the way of handling equipment. Because they transmit loads to the floor, no alteration of the structural framework is required as may be the case with bridge cranes or monorails. North Haven Construction Co. of North Haven, Conn., use their shop-built A-



OVERHEAD BRIDGE CRANE covers entire shop area without obstructing floor.



PORABLE A-FRAME supplements overhead crane, moves anywhere in shop.



PEDESTAL CRANE combines ease of handling with limited reach in confined areas such as welding or engine shop.

frame equipped with two Yale & Towne chain hoists for practically all heavy lifting.

Other contractors use A-frames to supplement other handling tools. In Ruckman & Hansen's Fort Wayne shop, an A-frame fitted with a 2-ton Yale spur-gear block increases mobility. Other handling devices in this shop include a 5-ton bridge crane and a small jib crane.

More elaborate A-frames that roll on rails under their own power might more accurately be called gantries. Perini has such a rig set up in the bay of the shop that they reserve for welding. Equipped with a 10-ton Shaw-Box block, this rig is powered by an electric motor that drives both hoist and wheels. The shop-assembled rig turns shovel buckets and other heavy components that require handling during welding.

Jib cranes are popular handling tools for shop areas where mobility is not important. Fixed to walls or columns, they offer ease of handling within a limited reach. Gilbane Building Co. of Providence uses a 15-ft swinging boom with a 2-ton, electric-operated chain hoist to handle lifts in the welding area of their shop.

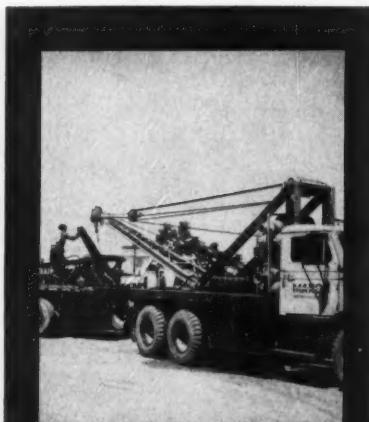
Some contractors favor jib cranes for the main shop, too. Where hoisting is confined to a few bays, jib cranes are ideal for assembly and disassembly. Four jib cranes mounted on wall brackets and fitted with Yale chain hoists handle all lifts in four bays of Slattery Contracting Co.'s New York shop.

Mounted on the floor rather than a wall or column, pillar cranes provide a full 360-deg operating circle. W. L. Harper Co. of Cincinnati has equipped their shop with a 3-ton Shaw-Box pillar crane built by Manning, Maxwell & Moore.

Small hydraulic cherry-pickers come in handy to provide the mobility that fixed lifting devices such as jib cranes lack. A. J. Baltes, Inc. of Norwalk, Ohio, get along well with a combination of two Ruger hydraulic cherry-pickers, a swinging boom, and a pillar crane.

## HANDLING...

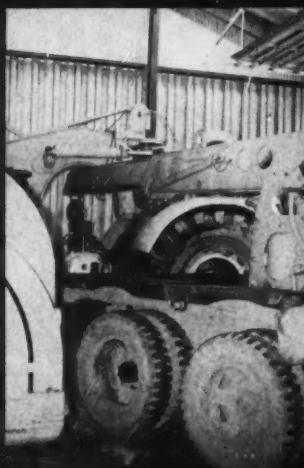
CONTINUED FROM PAGE 85



BOOM TRUCKS such as this shop-built rig are ideal for handling in yard.



FORK-LIFTS are handy material carriers in shop, yard and warehouse.



HYDRAULIC CRANE with low clearance does double-duty in shop and yard as an all-round handling tool.

Specialized units such as hydraulic lifts also have their place in contractor's shops. Ohio contractor V. N. Holderman has installed a 12-ton, twin-post Weaver hydraulic lift in their truck repair department. It enables mechanics to reach inaccessible components.

Many small contractors rely on a yard crane or boom truck for all heavy handling in the shop. When head room permits, these double-duty rigs back into a bay and lift on the spot.

There are a wide variety of these machines on the market, and contractors differ in their choices. Thomas M. Durkin & Sons, Inc. of Philadelphia use a 4-ton Hyster Karry Krane for practically all shop handling. Glasco Construction Co. of Glenside, Pa., get a lot of use out of Krane Kars.

Campanella & Cardi of Providence supplements several chain hoists in their shop with an Austin-Western hydraulic crane. Equipment superintendent John Ames says: "We'd be lost without it. It gives us the mobility we need in an all-round shop and yard handling rig."

Many contractors put together their own boom trucks for shop and yard handling. Most of these home-made rigs consist of a crane boom and a winch mounted on a flatbed truck.

A variety of hybrid rigs move machines and materials in contractor's yards. Harrison Construction Co. of Pittsburgh converted an old No. 10 Caterpillar grader into a yard crane by detaching the blade and front wheels, shortening the frame, and adding the front wheels and steering mechanism of a pickup truck. A winch powers the tubular A-frame that is mounted behind the cab of the rig.

Various types of fork lifts are also popular with contractors for both yard and warehouse. Some rigs that contractors are using include a Henry fork lift on a John Deere utility tractor, a Clarklift CF 50 with a capacity of 5,000 lb, and an M-3 ATC Terratrac equipped with lifting forks.

Learn how to pick the right welders for shop and field work...see p. 92.

# HOW TO SOLVE WEAR PROBLEMS with CONFIDENCE



Most problems of equipment wear are complicated by several wear factors, such as impact, abrasion, heat and corrosion. Choosing the best alloy for any set of conditions requires long experience plus an adequate selection of materials. Here's why STOODY, pioneers in hard-facing, gives you more for your hard-facing dollar and eliminates costly experimentation.

- **STOODY** is the only manufacturer that makes a complete line of hard-facing and build-up materials for manual, semi-automatic and fully automatic application.
- **STOODY ALLOYS** are time-tried cost savers; eliminate the need for frequent replacement parts, reduce plant downtime and keep all wearing parts operating at peak efficiency.
- **STOODY APPLICATION PROCEDURES** are the accumulative results of constant testing on the job. Proven procedures are carefully illustrated step by step and published for your use, making duplication easy.
- **STOODY** backs up its entire product line with over 40 year's specialization in the hard-facing industry. No other hard-facing manufacturer can offer equal experience.
- **STOODY** maintains a staff of qualified field engineers ready to help you solve wear problems on your own equipment in your own plant. Their knowledge is yours for the asking.
- **STOODY ALLOYS** are readily available everywhere. Over 750 STOODY dealers serve all parts of the United States as well as industrial centers of Canada and Mexico.

With more hard-facing alloys, more years of experience, ready product availability in all locations and a working staff of trained field engineers covering the nation, STOODY serves all your hard-facing needs faster, more specifically and with greater satisfaction.

Circle 87 on Reader Service Card

## LITERATURE AVAILABLE ON THE FOLLOWING STOODY ALLOYS...

### AUTOMATIC and SEMI-AUTOMATIC WIRES

STOODY 100	STOODY 107
STOODY 100 HC	STOODY 108
STOODY 102	STOODY 110
STOODY 103	STOODY 115
STOODY 104	STOODY 121
STOODY 105	STOODY 130
STOODY 106	STOODY 134
STOODY NICKEL MANGANESE	

### MANUAL RODS AND ELECTRODES

STOODY BUILD-UP	TUBE STOODITE
STOODY NICKEL MANGANESE	STOODY 2134
STOODY 2110	STOODY 6
STOODY 1105	STOODY 1
STOODY 1027	BOROD
STOODY SELF-HARDENING	TUBE BORIUM
STOODY 1030	TUBE BORIUM
STOODY 21	30-Down Screen Size
COATED TUBE STOODITE	TUBE BORIUM "G"

### MISCELLANEOUS

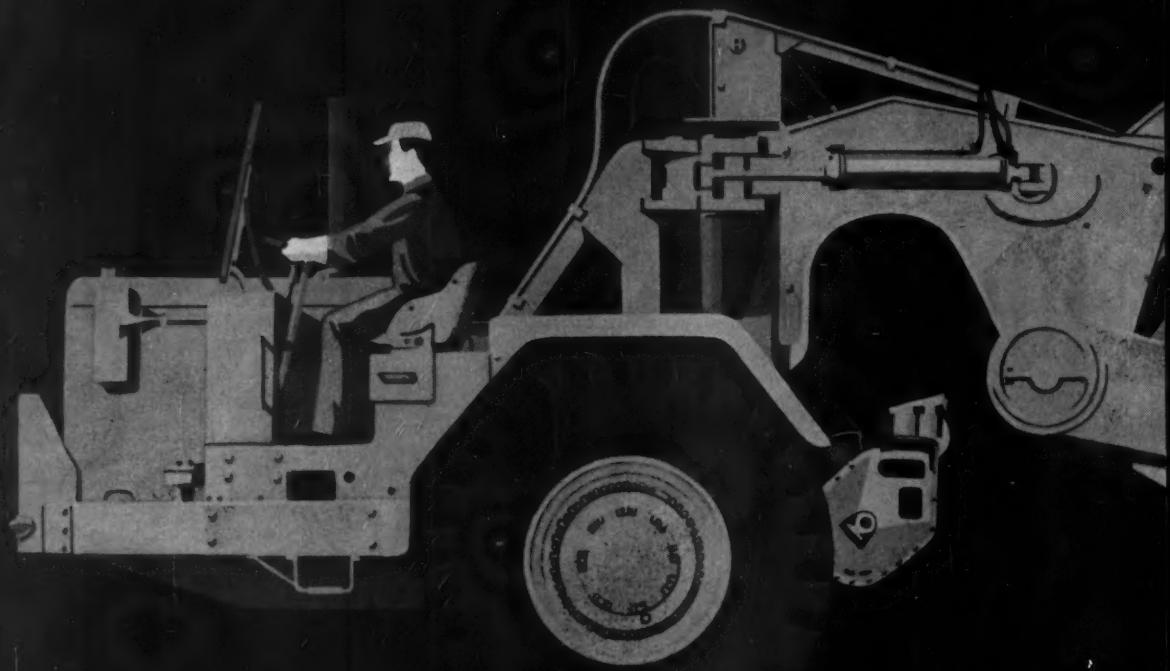
STOODY PLOW POINT BARS
BULK BORIUM
BUNDY TUBING
STOODY CENTRIFUGAL CASTINGS
COBALT BORIUM INSERTS
BORIUM BLAST CLEANING NOZZLES
NOZZLE HOLDERS AND PARTS

### HOW TO GET PERSONAL HARD-FACING HELP

Call your Stooody Dealer (check the yellow pages of your phone book). He will arrange for a visit from your nearest Stooody Field Engineer—or write to the factory.

### STOODY COMPANY

11902 East Slauson Avenue  
Whittier, California



**NEW, IMPROVED CAT 619...SERIES C...ALL NEW 4-CYLINDER ENGINE...  
24% MORE HORSEPOWER...COMPACT...ECONOMICAL...CHOICE OF POWER  
SHIFT TRANSMISSION, DIRECT DRIVE...COMPLETE UNIT CONSTRUC-  
TION...EASY SERVICING...NEW TIRE SIZE...AIR ACTUATED, LIVE POWER  
CABLE CONTROL...IMPROVED 18 YD. (14 YD. STRUCK) SCRAPER.**

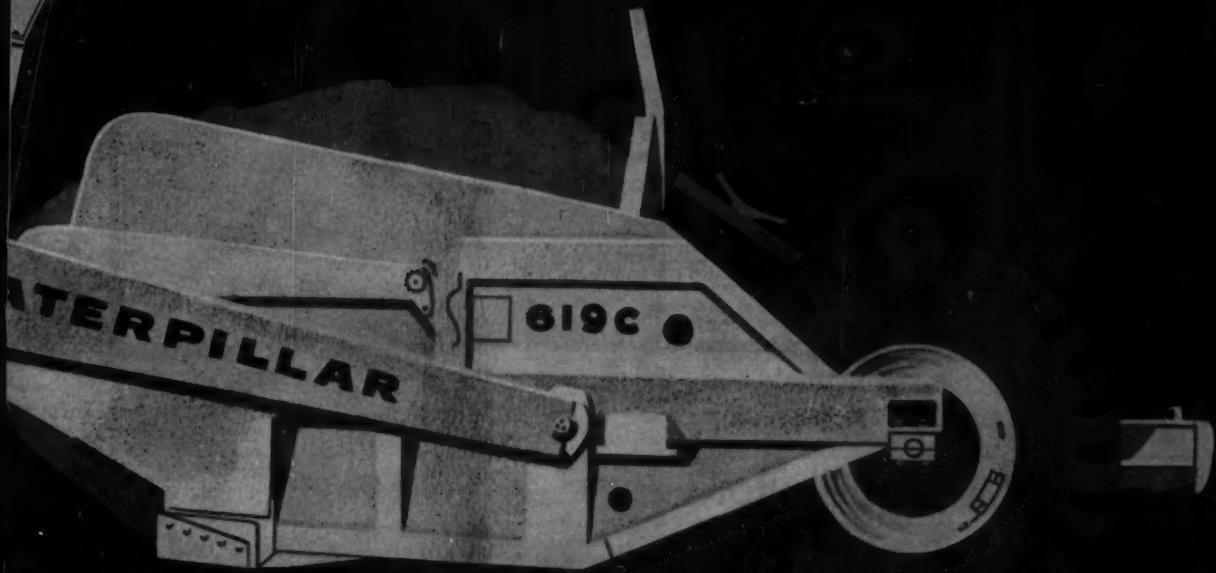
Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.

**CATERPILLAR**

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

**ADVANCED AS TOMORROW  
—CERTAIN AS YESTERDAY**

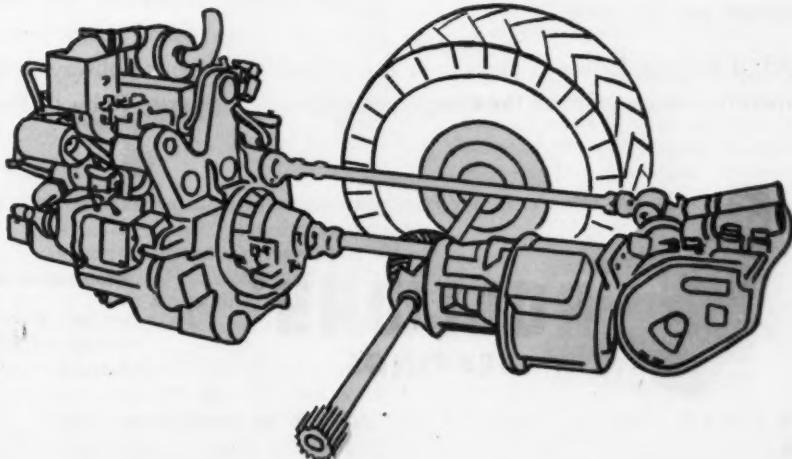
*Circle 88 on Reader Service Card*



New 280 HP 619C offers choice of power shift transmission for faster, easier operation or direct drive transmission. Air actuated, live power cable control reduces operator effort. New, bigger 26.5 x 29 (22 ply) tires improve roadability. Top speed: 30 MPH. Capacity of matching Lowbowl scraper: 18 cu. yd. heaped, 14 cu. yd. struck. Also available: 25 ton PR619 Rear Dump Trailer built by Athey Products Corp.

**New power shift transmission** provides 9 speeds forward with just 3 shifts. One lever gives operator instant selection of 3 speed ranges... dial indicator tells him when to shift. Within each speed range, transmission automatically shifts to torque divider drive, direct drive or overdrive to match job conditions. The 619C with power shift transmission always operates at the right speed and power for the job at hand.

**New, more powerful Cat D340 Engine** (280 HP maximum, 250 HP flywheel at 1900 RPM). This economical 4-cylinder engine burns No. 2 fuel oil... has parallel-ported dual intake and exhaust valves and overhead camshafts for most efficient operation... has pressure ratio controlled turbocharger and aftercooler. Swingaway dash and pivoted crankcase guard simplify servicing. Unit construction assures easy servicing: engine, transmission, planetary final drives can be removed without disturbing adjacent components.



When you need  
replacement bearings  
you need them F-A-S-T!



Your ROLLWAY Distributor  
has the Cylindrical  
Roller Bearings you need  
on the shelf!



When bearings fail, you've got to swing into action — fast. That's why your nearby Rollway Distributor maintains a broad line of Rollway bearings-for-replacement. Backed by the greatest range of types and sizes of cylindrical roller bearings available anywhere, he can speed needed items to you in the shortest possible time.

And, if bearing failure is chronic or exceptionally expensive, he can furnish the competent engineer-

ing and application assistance you need to solve a bearing headache permanently. Just ask him.

These are a few of the reasons why increasing numbers of front-line manufacturers are specifying Rollway Bearings for critical areas. The complete line includes radial and thrust cylindrical roller bearings for every application. Ask your Rollway Distributor for Catalog AD-1258. Or write Rollway Bearing Co., Inc., Syracuse, N. Y.



Where so much depends on so little . . . you can depend on

**ROLLWAY®**  
BEARINGS

**ENGINEERING OFFICES:**

Syracuse • Boston • Chicago • Detroit • Toronto  
Pittsburgh • Cleveland • Seattle • Houston  
Philadelphia • Los Angeles • San Francisco

Circle 90 on Reader Service Card

## PORTABLE COMPRESSOR COMPETITIVE ANALYSIS CHART

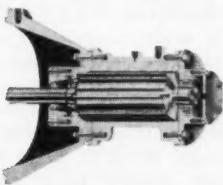
FEATURE OR BENEFIT	MONO-ROTOR	TWO-STAGE	SCREW-TYPE
DESIGN PROVEN IN CONSTRUCTION INDUSTRY	YES	YES	NO
ONE STAGE	YES	NO	YES
SINGLE ROTOR	YES	NO	NO
MAIN BEARINGS	2	4	4
TIMING GEARS	NO	SOME	YES
OIL SEALING	YES	YES	YES
SIMPLE CYLINDER SHAPE	YES	YES	NO
OIL PUMP NEEDED	NO	YES	YES
CRITICAL ALIGNMENT OF ROTORS	NO	NO	YES
TOTAL WEIGHT	LEAST	MORE	MORE
AVAILABILITY	NOW	NOW	?
CLUTCH	YES	SOME	NO
FEWEST PARTS	LEAST	MOST	MORE
MAXIMUM AMBIENT TEMPERATURES	125°	125°	115°
WARRANTY PERIOD	1 YEAR	*90 DAYS	*90 DAYS
FIELD PROVEN	YES	YES	NO

\*(USUAL)

## ANALYSIS PROVES THAT NEW MONO-ROTOR HAS BEST DESIGN

The easiest way to evaluate the compressor designs available today is to draw your own comparison chart. Above is one such chart covering many valid points of comparison between three compressor designs available—the screw type, the two-stage rotary and the new Worthington Mono-Rotor Blue Brute compressor. It clearly shows the new Mono-Rotor's superiority.

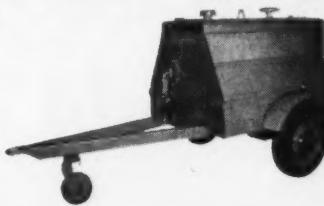
The new Worthington Mono-Rotor compressor is built with just one stage . . . just one rotor . . . just two bearings . . . no gears and no oil pump. It is obviously less complex than either of the other designs.



THE MONO-ROTOR HAS 1 ROTOR...  
2 BEARINGS...NO GEARS...NO OIL PUMP

What proof of dependability is there for the Mono-Rotor? Over the last three

years, this new compressor has been given what is probably the most thorough field testing ever given any compressor introduced to the construction industry. Tests have been so satisfactory that Worthington has extended the Warranty of these units to one full year from the usual 90-day period.



NEW 125' MONO-ROTOR COMPRESSOR

One of the most important points of comparison is the high temperature capability. The Mono-Rotor performs satisfactorily in the up to 125°F temperatures encountered in many domestic and foreign regions.

Note, too, that Worthington retains the clutch in the Mono-Rotor. Not necessary in daily operation, it still is helpful for

Circle 91 on Reader Service Card

very cold weather starting—and a real convenience in engine servicing.

Not noted in the chart is the fact that the new Worthington Mono-Rotors are 20% lighter in weight and are designed for improved towing and tracking. The third wheel is standard. It runs all day on one tank of fuel and has other features, too.

The Mono-Rotor Blue Brute can now be ordered in the 85', 125' and 250' sizes. See it . . . rent it . . . or buy it at your Worthington dealer listed in the Yellow Pages under "Compressors". Or write Worthington Corporation, Dept. 60-38, Holyoke, Mass. In Canada, Worthington (Canada) Ltd., Brantford, Ontario.



WORTHINGTON

PRODUCTS THAT WORK FOR YOUR PROFIT

TOOLS OF MAINTENANCE **WELDING**



# Choose Welders That Work in the Shop or Field

**MAINTENANCE WELDING** is the primary task of many of the 60,000 contractor-owned machines. And many of them do double duty by handling construction welding in the field.

When buying welding equipment, it's a good idea to select a machine suited for both types of work. A variety of welding equipment is available including portable or stationary, self-contained or electrically powered, and manual, automatic, or semi-automatic units.

But not all contractors are satisfied with standard rigs and, with a little welding know-how, have built machines to suit their needs. For example, Eastburn Construction Co. of Newark, Del., combined an old second-hand lathe and a semi-automatic welding machine to reduce shaft build-up time.

Eastburn modified a 10-in x 6-ft Pratt & Whitney lathe with a system of belts and pulleys to gear down the rotation of the head and the horizontal travel of the carriage. The lathe turns at a constant 3 rpm; the carriage speed can be adjusted by a step pulley from  $1\frac{1}{2}$  to 3 fpm. A variable speed electric motor bought for \$35 powers the lathe.

A semi-automatic 400-amp Magnawelder submerged-arc machine in a corner of the shop supplies welding current. Only the welding head and the flux feeder are mounted on the lathe and held in place by detachable brackets (see photo).

The welding head deposits a  $1/16$ -in. thick bead on each pass. By adjusting the carriage speed, the spacing between the spiral beads, or pitch, can be varied to suit the work.

When the machine is set up, all the operator has to do is feed flux to the hopper and knock off hardened flux from the bead.

A wide variety of standard models of semi-automatic and automatic welding machines are available to the contractor. But most contractors don't have enough work to keep an automatic welder busy enough to pay for itself, and the welder requires a full time operator in spite of the automatic tag. Also,

automatic welding units usually are permanent installations and take up shop space that cannot be used for other purposes.

Contractors who do own automatic welders generally keep them busy only in the winter when a man is available who can operate the unit full time. Some contractors with large equipment fleets do manage to keep their automatic welding equipment busy year round.

Perini Corp. of Framingham, Mass., owns an Amsco Leader semi-automatic welder with a 500-amp Miller power source (see photo). The unit is equipped with a single cone and rebuilds one track roller at a time. To avoid changing rollers after each pass to allow them to cool Perini hopes to get a spindle to speed the process. A flux cleaner and grinder, made by Robert Holmes Bros., Inc., of Danville, Ill., processes used flux.

Occasionally, an automatic welder can be utilized for welding applications other than maintenance. Ruckman & Hansen, Inc., of Fort Wayne, Ind., own a Sureweld 500-amp automatic unit built by National Cylinder Gas Corp. It has inert gas shielding and continuous wire feed and is equipped with a shop-built boom for the wire feed to extend its working radius to 20 ft.

This machine rebuilds blades and tracks and fabricates steel for different Ruckman & Hansen projects and also builds pile driving leads.

The best application of automatic welding equipment is for rebuilding and hardsurfacing. Gilbane Building Co. of Providence, R.I., for example, works a semi-automatic Hobart Model HOA-21 welding machine on buckets and crawler track rails.

The wire-fed, 200-amp dc unit is powered by a 600-amp GE transformer. The unit easily builds up flat surfaces because it puddles weld metal instead of depositing a bead. The welder applies as much as 50 lb of 7/64-in. manganese wire in 1 hr. Gilbane says that its initial cost (about \$300) was recovered in a few days.

In spite of all the specialized and automated welding equipment on the market, the portable welder with a capacity up to about 300 amp remains the workhorse in maintenance work. But when buying a welder, it's a good idea to think about satisfying the requirements for construction welding first and then to check the welder's suitability for maintenance. The items to consider are capacity, portability, and type of design.

The welder must be big enough. A welder that's big enough for the heaviest construction welding will have enough capacity for maintenance work. But a welder just powerful enough for repair welding may be too small for construction welding. In most maintenance work a 300-amp welder is adequate; for construction, units up to 400 and 500-amp capacities are often necessary.

Portable welding units that work in the field during the construction season are hauled into the main shop or yard for maintenance work during the winter. Also, a welding unit may be used on the job during the day and in the field shop at night; here a wheel-mounted unit is a must.

The welder must be of a suitable design. Engine-driven units can work beyond the reach of power lines and can handle repairs anywhere in the field.

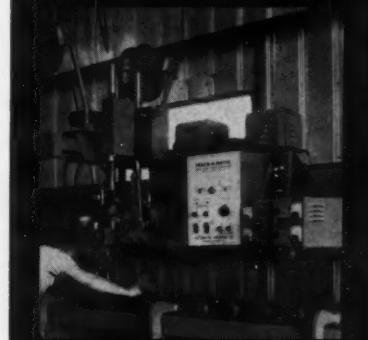
Both engine-driven and electrically powered welders are available in ac or dc versions. An ac welder is efficient for welding heavy steel plate with high currents and large-diameter electrodes; dc units are suitable as general purpose welders.

Electrically powered welders can be of the generator, transformer, or rectifier type. Generator-type welders are free from line voltage variations; transformer-type units are almost maintenance free because they have no moving parts. A dc selenium rectifier welder, also without moving parts, is suitable for use with low welding currents.

Each contractor should select the type of welder best suited



PORTABLE WELDER follows equipment to the job for on-the-spot repairs.



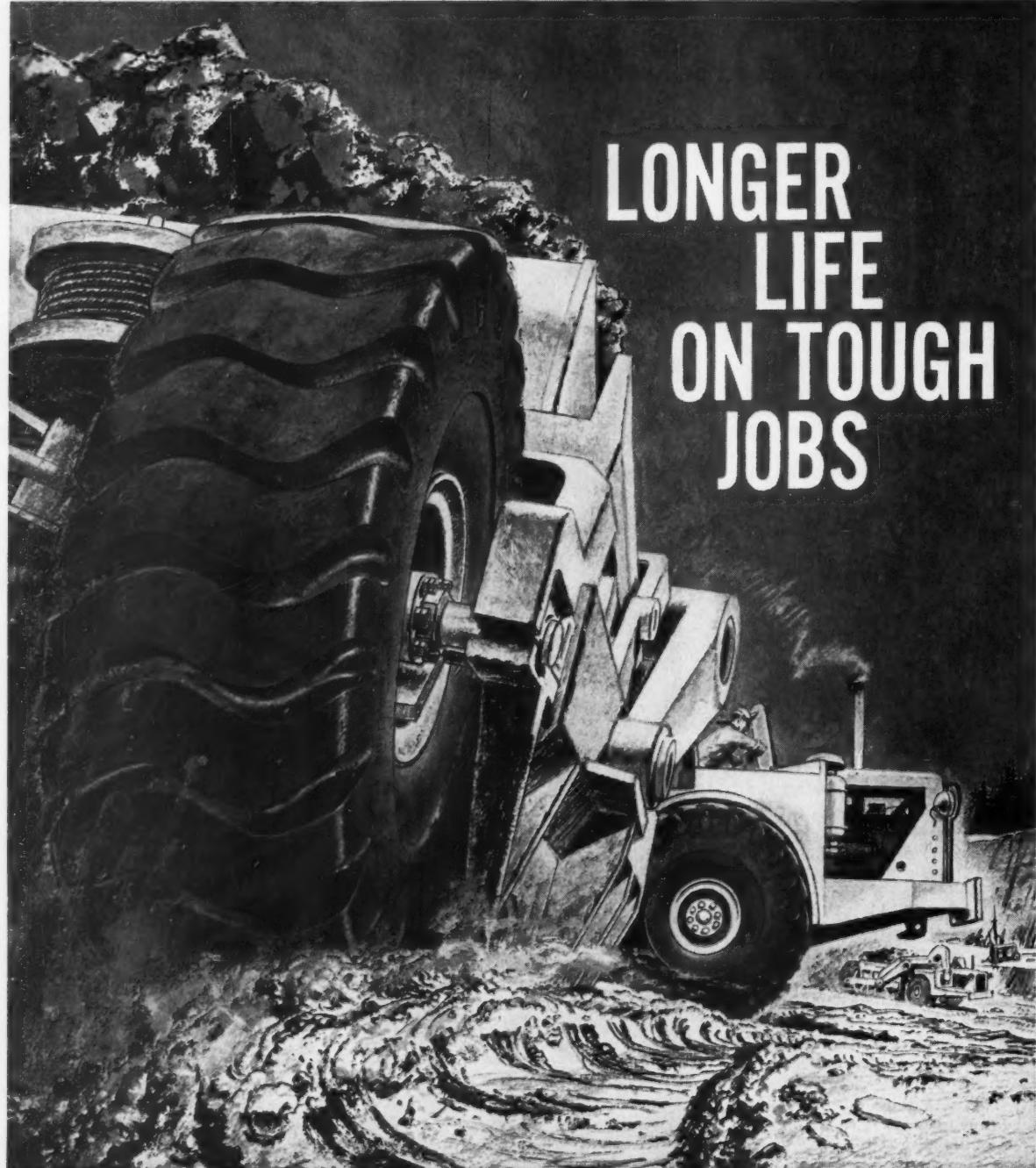
AUTOMATIC WELDER is set up in the shop for large-volume repair work.



CUSTOM-BUILT WELDER for shaft rebuilding consists of modified lathe and a 400-amp semi-automatic welder.

MORE TIRE—MORE TON HOURS

LONGER  
LIFE  
ON TOUGH  
JOBS



**U.S. ROYAL CON-TRAK-TOR—FULL LUG** Built burlier to take it under the roughest conditions • Increased resistance to impact and rock penetration • Wide, full-lug tread gives more ground-gripping contact and flotation—resists side slippage and assures more ton hours of service • More durable carcass—more tires retreadable • Prove-test them on your present equipment, specify them for your new machines • Call your U.S. ROYAL DEALER today for sure.

**U.S. ROYAL**  **TRUCK TIRES**

 **UNITED  
STATES  
RUBBER**  
Rockefeller Center, New York

Circle 94 on Reader Service Card

for his requirements. For work in the shop where power lines are at hand, an engine-driven welder is not the most economical. But in the field such a self-contained unit may be best because it can work anywhere. Engine-driven units are practically standard equipment on mechanic's or service trucks that handle on-the-spot repairs in the field (see photo).

Smaller contractors who don't bother to set up a field shop should look closely at the engine-driven welder because it makes an ideal trouble shooter regardless of where the job is or what the breakdown is. Also, it's a good idea to have a unit of adequate capacity, at least 300 or 400 amp. The extra capacity may not be needed for welding but it can be utilized to deliver electric power for other uses during welding. This can be important for lighting where maintenance is done at night.

A few contractors do not use portable welders in their shops but install a permanent unit instead. A stationary unit can be installed in some out-of-the-way corner of the shop, or overhead, where it does not obstruct the floor.

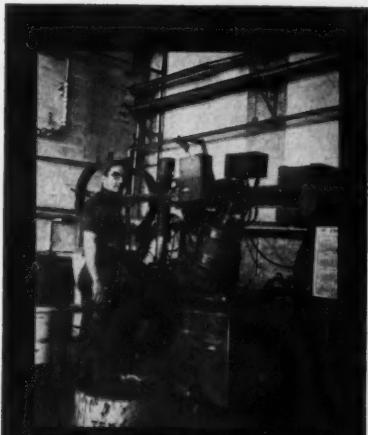
Other contractors use portable welders but set them up within a specific area reserved for welding. This confines the welding area and simplifies hooking up of the welding units. The trouble with this set up is that it is necessary to move equipment and parts to and from the welding area.

One way to install stationary welders is to scatter them about the shop. Savin Bros. of Bloomfield, Conn., has done this. Savin's six 300-amp P & H welders, each with 100 ft of cable, are spotted in strategic locations throughout the shop and service the entire floor area.

You might consider investing in a permanent welding system with outlets built into the walls and floor of the shop wherever needed. Such a welding system could be set up with a single constant-potential, multiple-arc power source of about 600-amp capacity, or several smaller

## WELDING ...

CONTINUED FROM PAGE 93



ROLLER REBUILDER is semi-automatic unit that welds a roller at a time.



ENGINE-DRIVEN WELDER on a service truck can handle repairs anywhere.



TOTAL FURNACE made of sand and cinder blocks preheats cast iron components right on the shop floor.

(about 300-amp) welders. They can be hooked up to lines leading to outlets closest to the work.

A well-equipped shop should be able to handle all types of welding and all types of materials, including carbon and stainless steels, special alloys, and cast iron. Repairs on cast iron are less common but more difficult than most other maintenance welds. Care must be taken to prevent cracking of the metal during welding and cooling. This requires special electrodes and preheating of the part to be repaired.

Contractors' shops seldom are equipped with furnaces to preheat cast iron parts for welding, and these are usually sent out to welding shops or dealers. But most contractors can probably handle cast iron welding right in their own shops with a little care and extra preparation.

For example, Sidwell Bros. of South Zanesville, Ohio, built a temporary "furnace" to preheat a gear housing from a shovel (see photo). Sidwell used cinder blocks and sand that had been heated in a small furnace in their shop. The gear housing was buried in the hot sand right on the shop floor and heated sufficiently for welding.

An easier way of preheating broken cast iron parts is with a torch. First, the torch flame is turned to yellow and aimed at the area to be welded. The yellow flame deposits a layer of carbon on the cast iron.

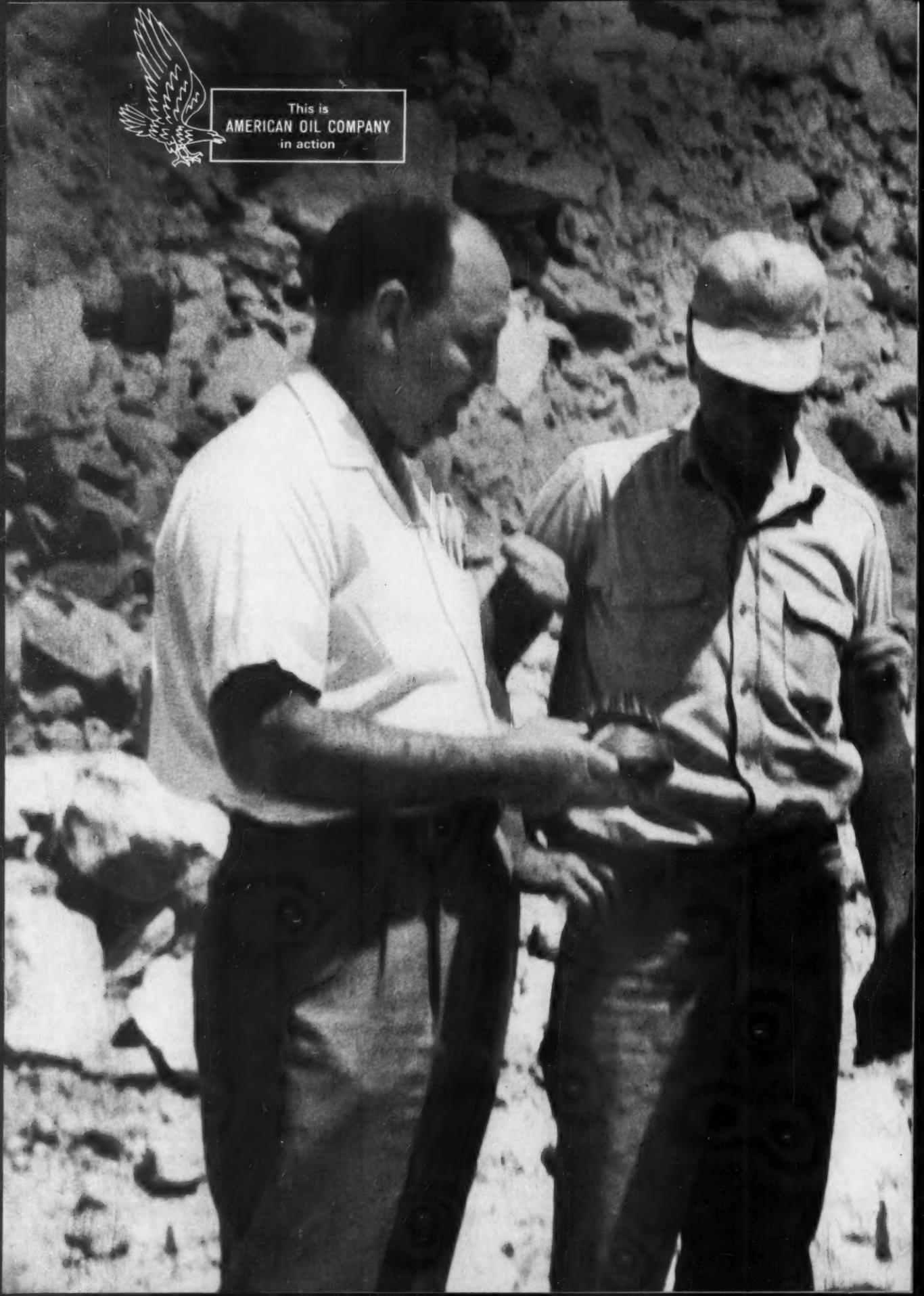
Next, the flame is turned to blue and again aimed at the area to be welded. The blue flame is much hotter and burns off the deposited carbon which serves only as a heat indicator. When all of the carbon has been burned off, the flame remains blue, indicating that a temperature of 450 deg F has been reached. This is not as high a preheat temperature as might be desired, but it is sufficient for small repair welds.

After the carbon is burned off, the electrode is applied by a skip welding technique. Short beads of weld metal are deposited with wide gaps between them; the

*continued on page 98*



This is  
AMERICAN OIL COMPANY  
in action





Why this bearing runs cooler with AMOCO Lithium Grease is explained by American Oil representative Harold Jansen to Raid Brothers' superintendent Kenneth Pearson and partner Melvin Raid.

## Result of first experience with American Oil Company service—down-time reduced

BY HAROLD JANSEN

**About the Author.** Harold Jansen has eleven years' experience giving lubrication technical assistance to customers. He has a degree in engineering to qualify him for such work in addition to having graduated from the Company's Sales Engineering School.

\* \* \*

Bearings were running hot in the rock-crushing equipment at Raid Brothers aggregate plant, Denmark, Iowa. This reduced the speed at which the equipment could operate.

Our lubrication specialist who called on this account before me recommended a switch to AMOCO Lithium Grease. The grease reduced bearing temperatures, got the bearings running smoothly, upped operating speeds and plant efficiency and cut down-time. The success with this grease, and with the technical assistance we were able to render here, resulted in Raid Brothers converting their entire plant, including automotive equipment, to American Oil products.

\* \* \*

You can get this kind of technical help and performance improvement from your equipment. Just call the American Oil Company office near you.

### Quick facts about AMOCO Lithium Grease

- Capable of providing superior lubrication over a wide range of conditions.
- Water resistant.
- High temperature resistant.
- Pumpable in grease gun or pressure system.
- Mechanically stable.



**AMERICAN OIL COMPANY**

910 SOUTH MICHIGAN AVENUE  
CHICAGO 80, ILLINOIS

Circle 97 on Reader Service Card

process is repeated until the weld is completed. Skip welding prevents the surrounding metal from getting too hot and cracking.

After the job has been completed, it is a good idea to keep the weld warm to prevent it from cracking. An oxy-acetylene torch produces enough heat to slow up the cooling process.

Cast iron welds should be made with electrodes that permit fast deposition to localize the heat in the immediate area of the weld and prevent cracking of the surrounding metal during cooling. All-State Welding Alloys Co., Inc., of White Plains, N.Y., recommends that electrodes with 35 to 60% nickel be used for cast iron. Electrodes with higher nickel percentages produce too much heat.

Many fast-wearing machine parts are rebuilt and hardsurfaced to extend their service life. Except for large contractors who own automatic or semi-automatic welding equipment, rollers, idlers, rails, tracks, blades, and similar parts are most often sent out for rebuilding and hardsurfacing. Contractors themselves generally rebuild such things as ripper, shanks, bucket teeth, and other odd shapes that don't lend themselves to automatic operation.

The contractor who does want to rebuild and hardsurface his machine parts can buy a variety of specialized equipment or can rig up his own welding installation.

Shop-built rigs, too, can come in handy. For example, the maintenance department of Kleck Custom Tillage of Phoenix, Ariz., devised an automatic machine to rebuild and hard surface new and worn grader blades.

A semi-automatic machine is the nucleus of Kleck's rig. Other parts are a table with hold-down clamps to position the blades and a converted cutting machine which rides on rails and carries the semi-automatic welding nozzle over the area to be hardsurfaced.

Where material buildup is not required or not desired in hard-

## WELDING . . .

CONTINUED FROM PAGE 95



MANUAL WELDING is necessary to rebuild and hardsurface odd shapes.



SPRAY GUN shoots molten alloy at a rotating part during hardsurfacing.



WELDS on critical machine parts are checked in field by portable equipment that makes nondestructive test.

surfacing, a part can be treated by applying either a paste or a powder which alloys with the base metal when heated and produces a very thin though highly wear-resistant surface.

The Wall Colmonoy Corp. of Detroit makes both paste and powder-type hardsurfacing products. Colmonoy's Sweat-on paste is applied in a thin coat to the wearing surface of a machine part, and when dry it is fused to the base metal by heating with an oxy-acetylene torch.

The powdered Colmonoy alloy is applied by spraying it on a machine part and then fusing it to the base metal by applying an oxy-acetylene flame. Colmonoy's Sprayweld gun is specially designed for such applications. The Spraywelder can be hand-held or mounted on a lathe for use on rods, shafts, and similar parts. In other techniques, the hardsurfacing metal is sprayed on in a molten state (see photo).

Practically all contractors own several sets of gas-welding equipment that is used primarily for cutting and gouging. For use in the shop and yard the gas cylinders, control valves, hoses, and torches are mounted on dollies or carts so they can be moved to where the work is. For the field, gas-welding sets usually are part of the service truck's equipment.

Welds on critical machine parts such as crane booms or engine blocks should be tested to check the quality of the weld and to insure safety. Non destructive testing by methods developed by the Magnaflux Corp. of Chicago probably is the easiest way of doing it.

Contractors can buy Magnaflux testing equipment, but infrequent use may not justify the expense. Also, some insurance companies prefer that critical parts such as crane booms be tested and certified by some third party before insurance is written. Therefore it may be more economical for a contractor to call upon the field testing services of the Magnaflux Corp. for testing and inspection of reconditioned or repaired rigs.

**Disassembly is an easy job—if the right tool is handy... see p. 104.**

# MARION'S NEW Adjustable-Speed TRANSMISSION GETS YOU FROM



## FASTER, SMOOTHER...and SAFER!

Marion's done it again! This time with an instant-shift transmission called GEARMATIC that lets your operator shift ANY TIME during the lift WITHOUT STOPPING OR EVEN SLOWING the hoist machinery. There's a low-speed, deep-power ratio for easing the load off the ground and for accurate final spotting . . . a high speed ratio for rapid hoisting . . . and an intermediate speed for average work. Your operator simply selects the speeds he wants to use—without touching a clutch or brake. We can put you lifts ahead of your competition with a GEARMATIC-equipped Marion. Let us tell you more!

**MARION POWER SHOVEL COMPANY • MARION, OHIO**  
A Division of Universal Marion Corporation



# GET REAL PRODUCTIVITY

Cut fuel 67%...performs  
like new with GM Diesel



When you can get a twelve-year-old shovel to move 1800 tons a day on only 15 gallons of fuel—and "perform with the responsive smoothness and economy of a new shovel"—you're getting real productivity!

And that's exactly what South Jersey Construction Co., Riverside, New Jersey, got when they repowered their  $\frac{3}{4}$ -yard Link-Belt with a "3-71" GM Diesel.

With the previous gasoline engine, they

were burning 40 to 45 gallons of fuel a day. Their 3-71 "Jimmy" has cut this to only 15 gallons of lower-cost Diesel fuel.

South Jersey Construction have found their GM Diesel powered equipment more economical, say this about its performance—"We let the GM Diesels go five months without attention, merely changing lube oil as we go. The equipment with GM Diesels never seems to

lose power. Acceleration is snappy and there's plenty of reserve power."

If that's the kind of productivity and performance you'd like from your equipment, specify GM Diesel when you buy or repower. There's a model to fit nearly every type of construction equipment. For details, see your GM Diesel Distributor. He's in the Yellow Pages under "Engines, Diesel," or write for more information.

# GM DIESEL ALL-PURPOSE

# GET A GM DIESEL ENGINE

Fast-moving loader saves  
investment in second unit



"The Trojan with the GM Diesel is a fast-moving, highly maneuverable piece of equipment that seems to be all over the yard at one time," says Charlie Young, Plant Manager for Young Bros. Contractors, Waco, Texas.

Young Brothers have used this Model 154 Trojan Loader with a "3-71" GM Diesel since March 1959—are very pleased with its performance and productivity. The unit stockpiles and serv-

ices an asphalt plant and crusher—moves up to 1200 tons per day.

"It does the work ordinarily requiring two pieces of equipment, thereby saving us the investment and upkeep of a second unit," says Mr. Young.

That's the kind of profit-making productivity Young Brothers have come to expect from their "Jimmys." They bought their first GM Diesel powered unit in 1946—now operate 22 GM Diesels.

How about you? Ready to repower or buy new equipment? Get the facts on GM Diesel power. See your GM Diesel Distributor. He's in the Yellow Pages under "Engines, Diesel," or write direct.

## POWER LINE

Sets the  
standard of  
Diesel  
productivity

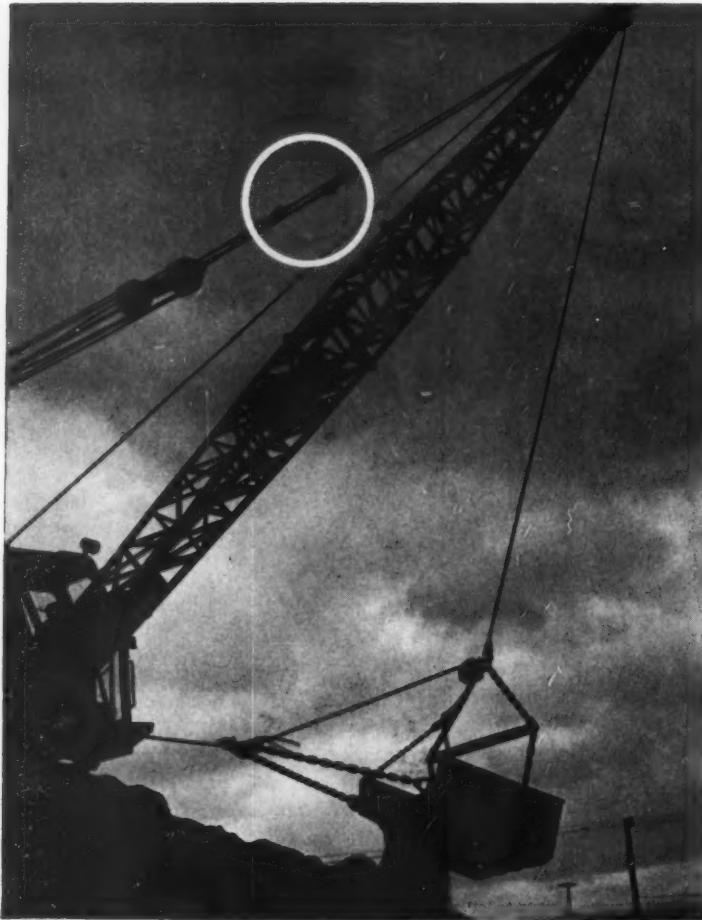
Circle 101 on Reader Service Card



# GM DIESEL

Detroit Diesel Engine Division,  
General Motors, Detroit 28, Mich.

In Canada: GENERAL MOTORS DIESEL LIMITED, London, Ontario  
Parts and Service Worldwide



*For strength  
... economy  
... versatility*



## These Boom Pendants are Built for Heavy Duty

If you've been searching for boom pendants that will do everything you ask of them—and more—specify Bethlehem Boom Pendants with swaged fittings.

Bethlehem Boom Pendants, used with spliced, socketed, or sleeve-type fittings, are engineered for peak performance.

They're made of durable bethanized rope, with each wire zinc-coated electrolytically, prior to being drawn to size. This provides maximum resistance to corrosion fatigue. Maintenance costs are lower, because constant lubrication is not necessary.

Bethlehem Boom Pendants come in a wide range of diameters, lengths, and styles. Our nearest sales office will give you full details.

*There's a distributor of Bethlehem Rope near you, supplied by our nationwide network of wire rope mill depots.*

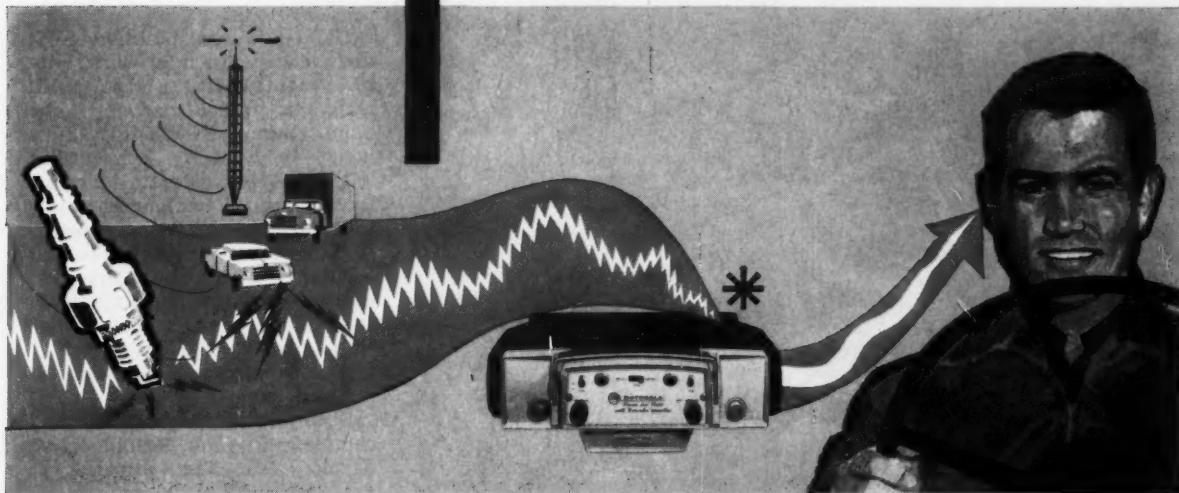
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.  
Export Sales: Bethlehem Steel Export Corporation

### BETHLEHEM STEEL



**new...Motorola  
MOTRAC radio with**

**EX TENDER** *operation*



**\*CUTS OUT IGNITION NOISES**

Dramatically Improves Overall Efficiency In 24-50 mc 2-Way Radio Systems

Motorola MOTRAC radio with Extender operation puts ignition noise suppression where it does the most good—built right into the receiver. Here it suppresses ignition noises from your own vehicle as well as those in the vicinity... providing the answer to the biggest problem in low-band 2-way radio systems today.

*First and foremost*, Extender operation improves reception throughout your system. In as much as  $\frac{4}{5}$ 's of your territory, ignition noises can garble your messages. Now messages are clear. "Hash" caused by ignition noise is gone. *Second*, you can "extend" useable operating range where ignition noises are high. Motorola Extender operation suppresses disrupting ignition noise on weak, fringe area signals allowing the message to come through clearly—right out to the limits of your radio coverage. *Third*, you can reduce interference from other radio systems (extraneous messages, ringing and other noise interference known as intermodulation)... just flip the switch on the control head.

"MOTRAC" is a trademark of Motorola Inc.

**HEAR FOR YOURSELF**

Send in coupon NOW  
for a free, on-the-job recording...  
listen to the dramatic  
difference in message clarity.

Motorola Communications & Electronics, Inc.  
4501 Augusta Blvd., Chicago 51, Illinois  
A Subsidiary of Motorola, Inc. Dept. MUM128

Send me phonograph record

Have salesman phone for appointment

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



**MOTOROLA 2-WAY RADIO**

Circle 103 on Reader Service Card

TOOLS OF MAINTENANCE **PRESSING**



# **Attachments Boost The Versatility Of Hydraulic Rams**

**IF YOU CAN'T** take it apart, you can't fix it. To remove gears, bushings, bearings, shafts, sleeves and other tightly fitting equipment parts, a contractor needs a full line of pulling and pressing tools.

Hand-powered pulling tools are available for light work, but most contractors use portable hydraulic rams powered by hand pumps for all-round, heavy-duty pulling. When used with the proper attachments, these versatile tools can push, pull, lift, press, clamp or spread.

Many contractors also equip their shop with a stationary hydraulic press for reassembly of shaft-mounted parts. And a few shops have specialized pressing tools such as track pin and bushing presses.

Several manufacturers offer a complete line of portable hydraulic rams with capacities ranging from 2 to 100 tons. Hand pumps ordinarily used to power these rams create operating pressures as high as 10,000 psi. Flexible hoses with special fittings couple rams and pumps.

Attachments available for use with hydraulic rams include clamps, chain pulls, push-pull yokes, extension tubes and a host of other fittings. Manufacturers also offer tools for such special jobs as splitting a twin-engined Euclid TC-12 crawler tractor.

Mounting attachments on a board or wall marked with silhouettes of each tool help mechanics identify the item they need. Many contractors fabricate steel tripods or stands, usually fitted with chain falls and mounted on casters, for handling the larger size hydraulic rams.

Eastburn Construction Co. of Newark, Del., is an outstanding example of a contractor with a shop that is well-equipped with a variety of pulling and pressing tools. They have a complete line of portable hydraulic rams, several hand pulling tools, and a stationary press.

Eastburn uses each of their three OTC Power-Twin portable rams at jobs suited to its capacity. Their 17½-ton unit is an all-around shop tool used primarily

for pulling gears and bearings. Their 50-ton and 100-ton rams see considerable service in the field as well as the shop. They are used primarily for disassembly of tractor roller assemblies, with the larger 100-ton ram reserved for the biggest machines such as the Cat D9. Eastburn also has a 10-ton Blackhawk Porto-Power ram that they use for light jobs such as bead breaking on big scraper tires.

Like many other contractors, Eastburn supplements ram attachments provided by the manufacturer with home-made devices for special jobs. They made such a tool for pulling the rubber-insulated bushings in the suspension system of Autocar trucks. Eastburn also modified a three-pronged pulling head to remove main-drive gears in cranes.

For simplicity's sake, most contractors try to keep the number of different attachments they use to a minimum. Whenever possible they modify an attachment so it can be used on several different makes and models of machine. For instance, attachments for Eastburn's 50 and 100-ton rams are interchangeable because threaded heads of the rams are the same size.

Mechanics in Eastburn's engine shop use manually-operated pulling tools to remove engine bearings and front-end bushings of light trucks. Manufactured by Snap-On Tools Corp., these pullers develop as much as 25 tons of pressure by means of a hand-turned screw. Snap-On also makes slide-hammer pullers for loosening gears or pulleys.

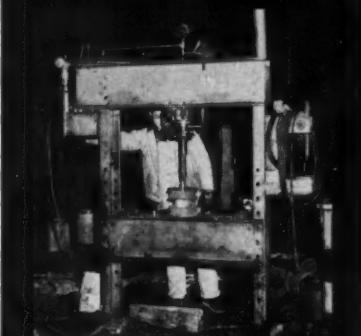
Eastburn uses a 120-ton Manley stationary press for installing shafts in tractor rollers and for other work that can be easily carried to the machine. A hand pump powers the hydraulic ram, which is fixed in the frame.

Stationary hydraulic presses in use in contractors' shops ordinarily have a capacity of at least 100 tons. The shop of De-Matteo Construction Co., Quincy, Mass., boasts a 200-ton Rodgers stationary press.

Some contractors mount por-



**HYDRAULIC RAM** powered by hand pump works with variety of attachments



**STATIONARY PRESS** with a fixed ram reassembles shaft-mounted parts.



**TRACK PIN AND BUSHING PRESS** is a specialized tool for contractors who do all their own track repair.

table rams in stationary press frames. Bucks County Construction Co. of Penndel, Pa., mount their 100-ton OTC twin-ram hydraulic unit in a 20-yr-old Atlas press frame, which has an adjustable, ratchet-operated table. When they want to use the ram elsewhere in the shop, they simply lift it out of the frame with chain falls or a cherry-picker crane.

Many types of press frames are on the market. Owatonna offers two open throat press frames for mounting a 17-ton ram on a bench or table. They also make a pedestal type press frame and a portable, caster-mounted press frame.

But contractors often fabricate their own press frames from scrap steel. Ruckman & Hansen of Fort Wayne built such a stand for a hand-pump-powered portable ram. It is equipped with an adjustable table powered by a hand-operated Fulton winch. A cable that runs on pulleys mounted on the frame raises or lowers the table; pins inserted through holes in the frame hold the table at the desired level.

Campanella & Cardi of Providence, R.I., went one step further and built a complete 100-ton stationary press out of scrap steel and used parts. A 4½-hp electric motor salvaged from Navy surplus drives the hydraulic pump that powers the ram. The pump originally was part of the hydraulic system of an airplane.

Hand presses also have a role to play in a contractor's shop. D. W. Winkleman of Syracuse, N.Y., uses a Famco hand press for such light work as installing an impeller in an engine water pump.

Some contractors get along without pressing tools for certain jobs. One way to avoid pressing when installing gears on a shaft is to heat the gears until they expand sufficiently so that they can be slipped on the shaft. The gears can be immersed in hot oil, but this is cumbersome. The Horvitz Co. of Cleveland heats the gears with an acetylene torch instead. It takes just a few minutes.

**Machining tools  
can handle a wide variety  
of work...see p. 116.**

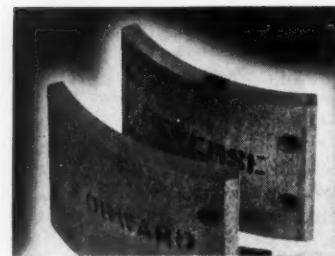


## The right friction material helps equipment log more working hours

With Grey-Rock you get longer service life and positive, reliable control under even the most severe operating conditions. The broad Grey-Rock line enables you to choose the exact friction material—woven, molded, semi-metallic or full metallic—proved best for your equipment and operating conditions. There's no need for "make-do," no need for compromise. Whatever your requirements—roll linings, clutch facings, cones, segments, blocks,

discs or special shapes—Grey-Rock can supply them. And behind it all is Grey-Rock's careful engineering and years of experience in industrial friction materials to assure you of maximum service with minimum downtime.

Get a Grey-Rock Industrial Friction Material Catalog from your Grey-Rock distributor today—or write to Grey-Rock Division, Raybestos-Manhattan, Inc., Manheim, Pa.



Grey-Rock's Balanced Brake Blocks give your heavy trucks more safe stopping power, longer lining life, and lower cost-per-mile, too.

Only **Grey-Rock®** makes **BALANCED BRAKE LININGS**

BALANCED BRAKSETS • TRUCKSETS • BRAKE BLOCKS • VEE-LOK® CLUTCH FACINGS • AUTOMATIC TRANSMISSION PARTS  
Circle 106 on Reader Service Card

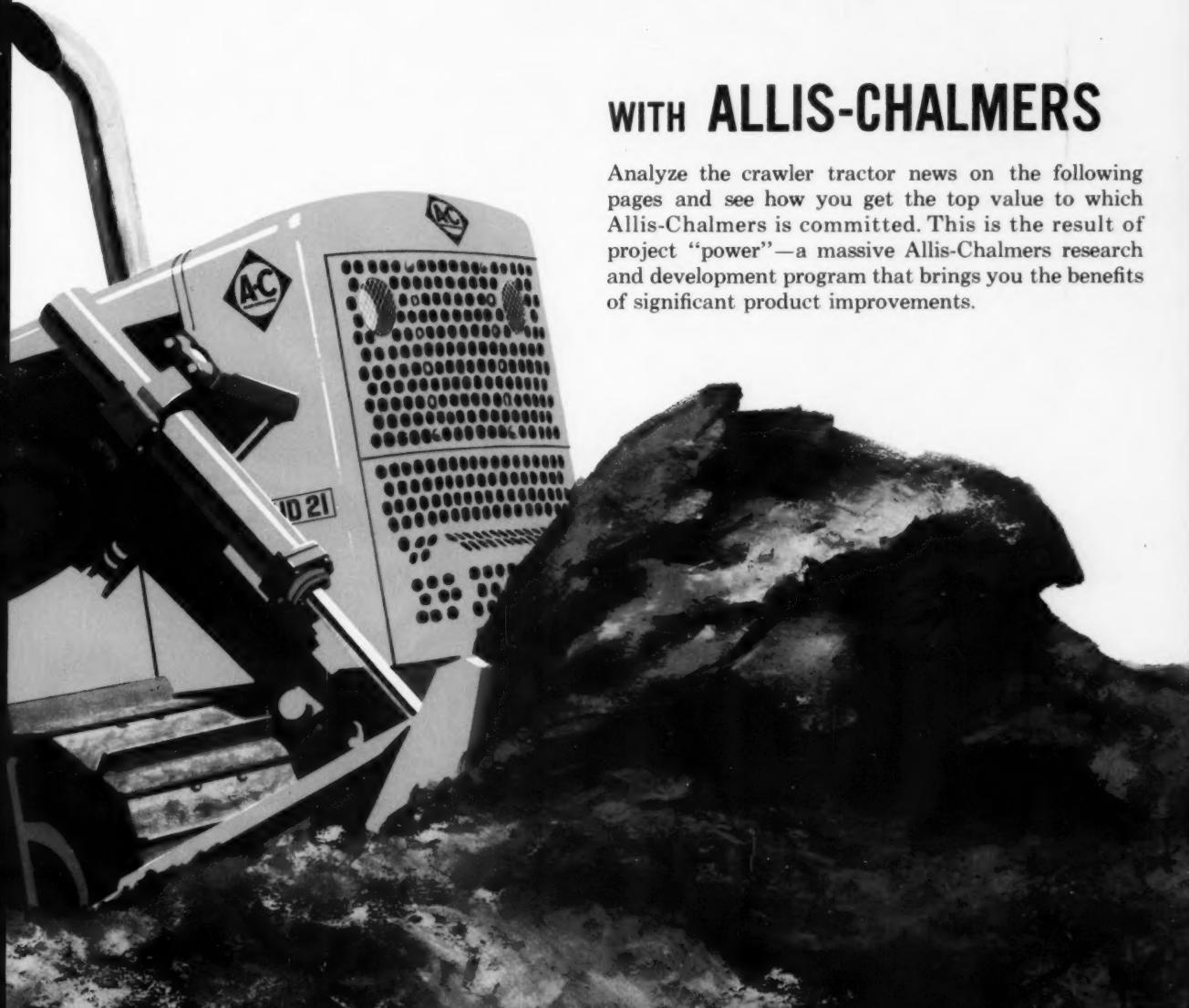
*Step up your*  
**CRAWLER  
TRACTOR**

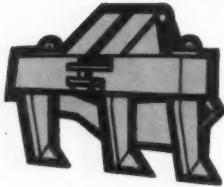
**P**erformance  
**O**perator comfort  
**W**earability  
**E**ase of maintenance  
**R**eliability



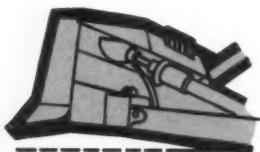
## WITH ALLIS-CHALMERS

Analyze the crawler tractor news on the following pages and see how you get the top value to which Allis-Chalmers is committed. This is the result of project "power"—a massive Allis-Chalmers research and development program that brings you the benefits of significant product improvements.





**Deep penetration ripper**—Allis-Chalmers unique parallelogram ripper design keeps shanks at most effective penetration angle at all depths for fast, sure ripping.



**New finger-tip tilt dozer**—gives you 20 inches of tilt, controlled right from the operator's seat. Compact, front-mounted, triple-valve, hydraulic unit controls blade tilt, lift and lower, and ripper lift and lower.

## BETTER THAN EVER

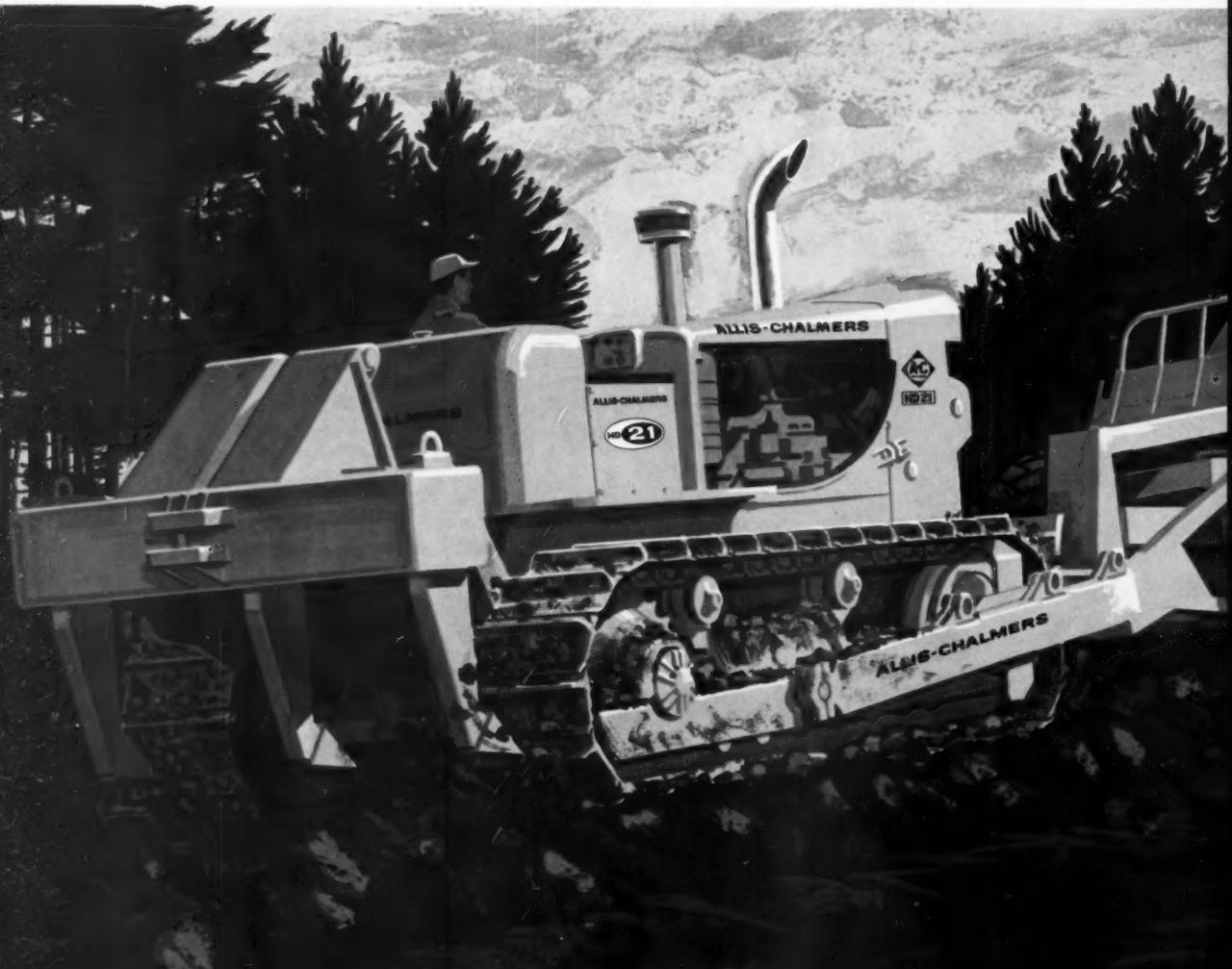
# HD-21

225-hp  
Torque Converter  
Drive

Dollar for dollar, the HD-21 offers you the biggest dollar value in work capacity in the big-tractor class. Equipped with a 225-hp turbocharged engine and the most proved torque converter drive in the industry, the HD-21 gives you king-size output.

And yet, big HD-21's are practical. They're maneuverable, easy to handle, and in tandem pushing will supply more power than any single unit. If two pushers aren't needed, one can always be split off for other duty.

A complete range of front and rear-mounted attachments makes the HD-21 a match for the big jobs anywhere. It's a proved pusher . . . it's a powerful puller and ripper . . . it's a big-yardage dozer.

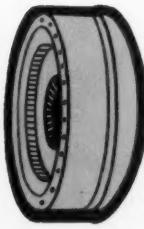


The benefits of  
**ALLIS-CHALMERS**  
**CONTINUING RESEARCH**  
extend across  
the entire tractor industry

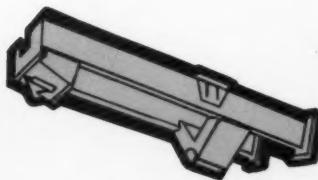
Here are a few standout examples among the many developments instituted by Allis-Chalmers. First with a torque converter tractor, Allis-Chalmers pioneered a whole new concept of tractor performance with this bold departure from conventional power transmissions. Another first, extended lube intervals for truck wheels, idlers, and rollers, culminated in today's permanently lubricated units. Allis-Chalmers unit construction of major assemblies has saved untold hours of maintenance time. The main frame design idea of mounting major components to a heavy-duty, channeled frame resulted in shock-resisting, longer-lasting tractors.



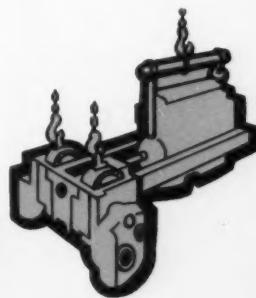
Torque converter drive



Permanent  
lubrication



All-steel main frame



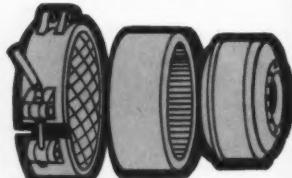
Unit construction

**AND**  
**DESIGN IMPROVEMENTS**  
**KEEP ON THE MOVE**

Built into your 1961 Allis-Chalmers tractors are improvements to further boost performance, step up component life and dependability, increase operator comfort and convenience, ease the job of maintenance and service.



**NOW!**  
**A MAJOR DESIGN  
ADVANCE**



New oil steering clutches and oil-cooled power brakes on the HD-21 and HD-16 give you new standards of performance... new peace of mind regarding maintenance and service life. Both clutches and brakes run in a complete bath of oil so heat is dissipated with extreme efficiency giving you exceptionally long life with minimum brake adjustment... no clutch adjustment. New power steering and power brakes reduce operator effort, fatigue... help him maintain maximum production all day.

**BIGGEST VALUE  
IN THE 150-HP CLASS**  
**HD-16** Torque Converter  
or  
All-Gear Drive

The HD-16 continues to grow in popularity for one significant reason—big-tractor performance at medium-tractor cost. Pioneering, dozing, hauling, ripping, pushing—this tractor has a tremendous work range. It's in the same horsepower class of the biggest tractors of a few years back—yet in work output, ease of operation and maintenance, it's far and away ahead.

Here is a machine with up to 60,000 lb of drawbar pull, 19 tons of live-action dozing weight, with engines that give you up to 27 percent fuel saving over tractors with comparable-sized power packages.



*Step up your*

**P**erformance  
**O**perator comfort  
**W**earability,  
**E**ase of maintenance  
**R**eliability

**WITH ALLIS-CHALMERS**



New  
able  
This A  
tra-he  
metall  
vide  
cool op  
life. O  
under

New f  
—now  
hydrat  
the fi  
levers  
and H



New oil master clutch is available in the HD-11 and HD-6. This Allis-Chalmers clutch is extra-heavy-duty with multiple metallic-faced plates that provide big reserve capacity for cool operation, less wear, longer life. Oil is filtered and circulated under pressure.



New finger-tip power steering—now the HD-11 brings you hydraulic power steering with the finger-tip, console-type levers so popular on the HD-21 and HD-16 models.

## ANOTHER STEP AHEAD in an all-purpose size

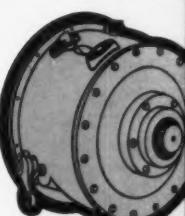
### HD-11 99-hp All-Gear Drive 111-hp Torque Converter Drive

The new HD-11 gives you performance that's unmatched in its class . . . and you can also have the 1-2 punch of a powerful new engine, plus the smooth speed and efficiency of torque converter drive. The torque converter, coupled with a constant mesh transmission, three speeds forward, two reverse, gives this machine the kind of performance you would normally expect from larger machines.

In addition, you get output-boosting operator advantages like hydraulically-actuated steering clutches, and with the standard transmission machine, the easiest shift pattern in the industry.



New 10000 engine power HD-11. The 6000 engine turned in the HD-6. Both fast-starting, responsive high torque for top performance in today's tough situations. They are open-chamber controlled-combustion engines delivering high output and output even breathing hard.



New! Torque converter drive now Allis-Chalmers offers torque converter for the HD-11 and HD-6. On big tractors, small, you get the advantages of Allis-Chalmers torque converter experience. Resulting performance and dependability.



**Industry's healthiest engines—** give you up to 27 percent more efficient operation than ordinary engines. Unique controlled-turbulence combustion provides greater energy output on less fuel. Standard in the HD-21, HD-16, HD-11, HD-6.



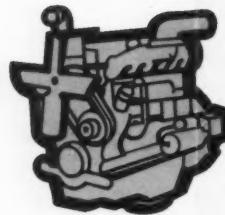
**ALLIS-CHALMERS**  
**LEADS THE FIELD**  
**WITH THESE**  
**PROVED TRACTOR**  
**ADVANTAGES**

## STEP AHEAD in purpose size

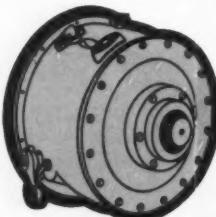
**99-hp  
All-Gear Drive  
111-hp Torque  
Converter Drive**

gives you performance in its class . . . and you 1-2 punch of a powerful the smooth speed and the converter drive. The coupled with a constant three speeds forward, this machine the kind of would normally expect es.

You get output-boosting ages like hydraulically clutches, and with the sion machine, the easiest e industry.



**New 10000 engine powers the HD-11. The 6000 engine is featured in the HD-6. Both are fast-starting, responsive, with high torque for top performance in today's tough service. They are open-chamber, controlled-combustion engines delivering high output without even breathing hard.**



**New! Torque converter drive—**now Allis-Chalmers offers a torque converter for the HD-11 and HD-6. On big tractors or small, you get the advantages of Allis-Chalmers torque converter experience. Result: outstanding performance and dependability.



**Industry's healthiest engines—**give you up to 27 percent more efficient operation than ordinary engines. Unique controlled-turbulence combustion provides greater energy output and less fuel. Standard in the HD-21, HD-16, HD-11, HD-6.

## THE CLASS OF '61 —and then some

**HD-6 66.5-hp  
All-Gear Drive  
72-hp Torque  
Converter Drive**

With the HD-6 tractor, you get advantages offered only by Allis-Chalmers in this size class.

You have a choice of three models to match the machine to your requirements:

- Power-shift transmission model with torque converter, plus power steering and power brakes.
- Standard-shift model with oil master clutch, power steering and power brakes.
- Standard-shift model with dry or oil master clutch.

In its size class—dozing, pulling, ripping—the HD-6 gives you the biggest dollar's worth in the tractor industry.



**Tapered roller bearing truck wheels, idlers and support rollers—**ride freely on the track for reduced friction, longer life. This modern design provides the alignment that makes Positive Seal permanent lubrication effective.



**True-dimension heat-treated track pins and bushings—**sign of the trucking guards and construction, marriage the best in

**NEW HD**

**POWER-SHIFT  
TRANSMISSION**

Allis-Chalmers has developed a torque converter power包own Power-Shift transmission, rating a unique system. It is operated, multiple-speed. You get maximum weight, accurate control with on-the-go . . . an industry range (up to 5.9 mph).

Amazing automatic "GROUNDSPEED CONTROL"

Allis-Chalmers electronic Speed Control system for pre-select and set speed to match slope cutting, finishing. Now, for the first time, shift ease plus broad speed ranges, plus automatic Ground Speed Control.

**HD-6**



**SHIFT  
MISSION**

has combined smooth performance with its transmission incorporating a system of hydraulically-actuated multiple-disc clutch packs. Maximum working efficiency, coupled with finger-tip shifting provides an infinite number of speeds in the entire working range (from 0 to 10 mph). But that's not all!

"**GROUND SPEED CONTROL**" allows your exclusive *Ground Speed Control* system lets your operator quickly and easily set the best working speed for any special conditions—whether it's finishing or pioneering. At the same time, he has power-assisted steering, a broad torque converter and a power take-off, plus—amazing, automatic ground speed control.

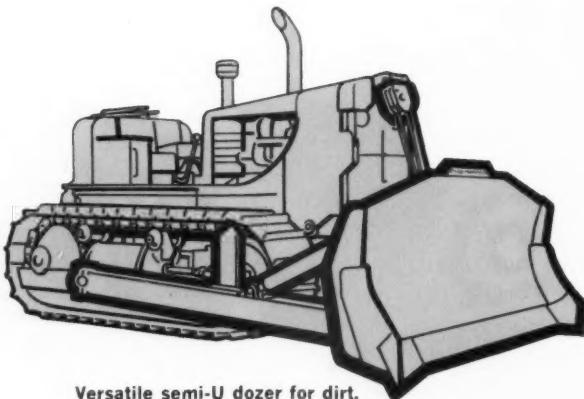


**Undercarriage**—specially designed track shoes, side bars, and bushings are in a class by themselves. Heavy-duty design of truck frames, track guides, and the clean bottom line, makes this undercarriage the best in the industry.

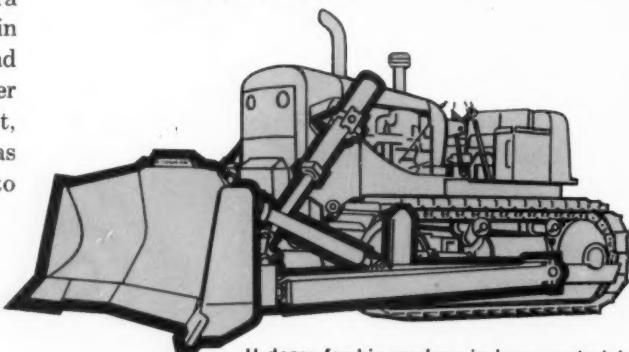
# NEW, BIGGER AND STRONGER DOZERS FOR EVERY TRACTOR MODEL

You get the new U moldboard for big production in loose or semi-loose materials, and the semi-U blade for all-round dozing. Equipped with the unique rock bit, the semi-U is unequaled for rock and quarry work. You get new, straight dozers with increased height in center section for bigger capacity without sacrificing visibility.

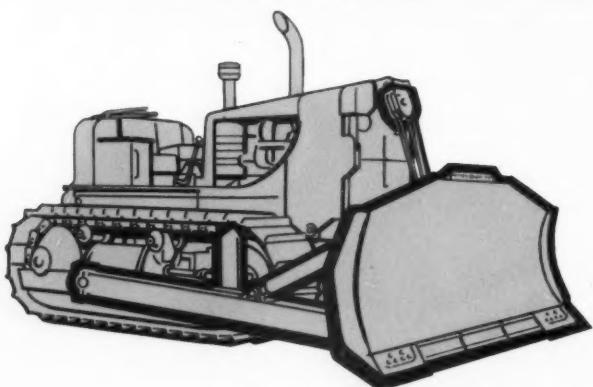
All these dozers have extra heft and strength for long life in tough duty. Cutting edges and end bits are wider and heavier for extra wear. In every respect, these dozers lead the way as Allis-Chalmers continues to step up tractor performance.



Versatile semi-U dozer for dirt, quarry jobs, rock work.



U dozer for big yardage in loose material.



Straight dozer for all types of earth moving, brush clearing, cleanup—many other jobs.



New F-100 cable-control unit for HD-21, HD-16, HD-11 dozers

A revolutionary design concept, the F-100 cable-control unit is the only fully sealed unit in the industry. Brakes, clutches, gears—all controls—run in a bath of oil. The F-100 seals out dirt and moisture—requires no lubrication. This cool-running, sure-acting unit has already recorded new standards for exceptionally long life.



Torque converter



The benefits of  
**ALLIS-CH**  
**CONTINUING**  
extend across  
the entire tractor

Here are a few standout developments instituted by a torque converter tractor. A whole new concept of bold departure from conventional. Another first, extended lubricated units. Allis-Chalmers major assemblies has saved maintenance time. The main frame and major components to a heavy-duty resulted in shock-resisting



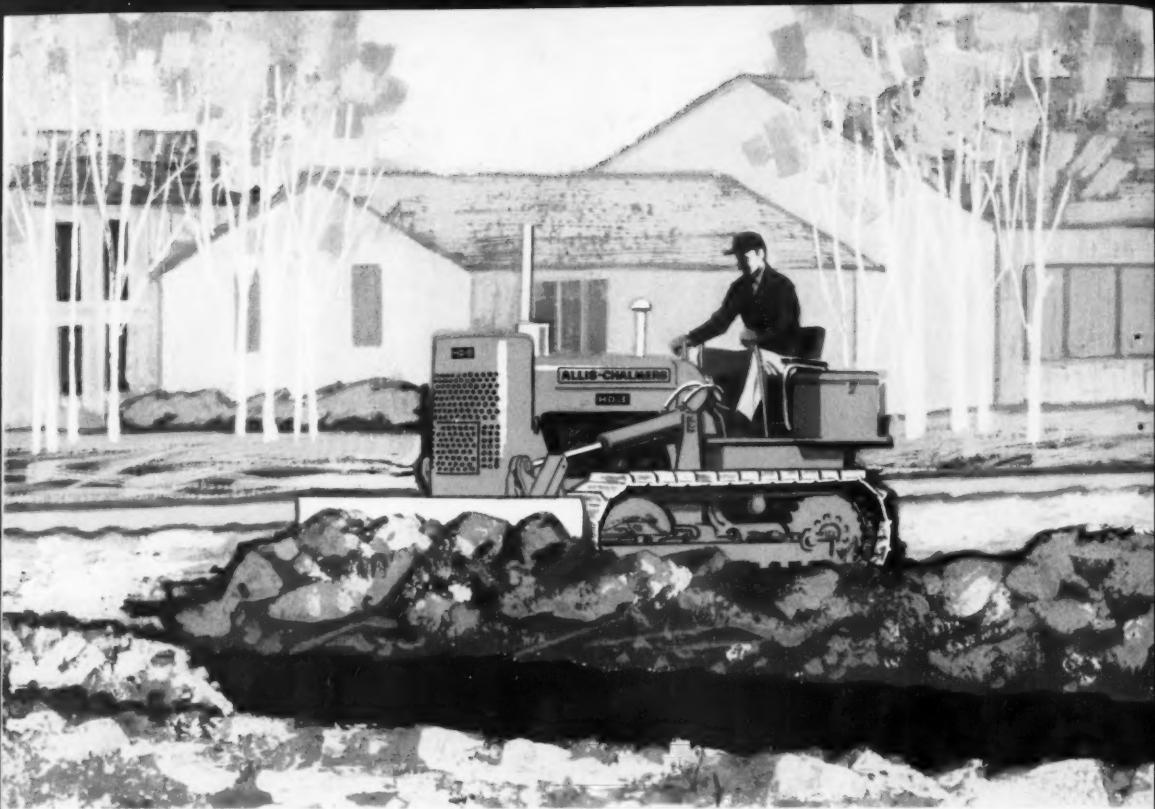
torque converter drive



Permanent  
lubrication

**AND**  
**DESIGN IMPROVEMENTS**  
**KEEP ON**

Built into your 1961 Allis-Chalmers are improvements to further increase component life and dependability, comfort and convenience, and service.



## ALLIS-CHALMERS NEW HD-3 TRACTOR

### BIG PERFORMANCE IN A COMPACT PACKAGE

H-3—43-hp gasoline engine    HD-3—40-hp diesel engine

No tractor of comparable size gives you the strength and performance advantages of this new tractor.

It has the leadership features of Allis-Chalmers big tractors—industry's toughest track, all-steel main frame, top accessibility of major components—plus heavy wrap-around grille, diesel or gasoline engine, oil-

type shuttle clutch.

The shuttle clutch puts this tractor way out front in faster cycle speeds. You can shift from any of the four forward speeds to the comparable reverse speed without shifting gears.

This tractor is built to stand up to the tough requirements of construction work.

STEP UP  
YOUR

P  
erformance  
O  
perator comfort  
W  
earability  
E  
ase of maintenance  
R  
eliability



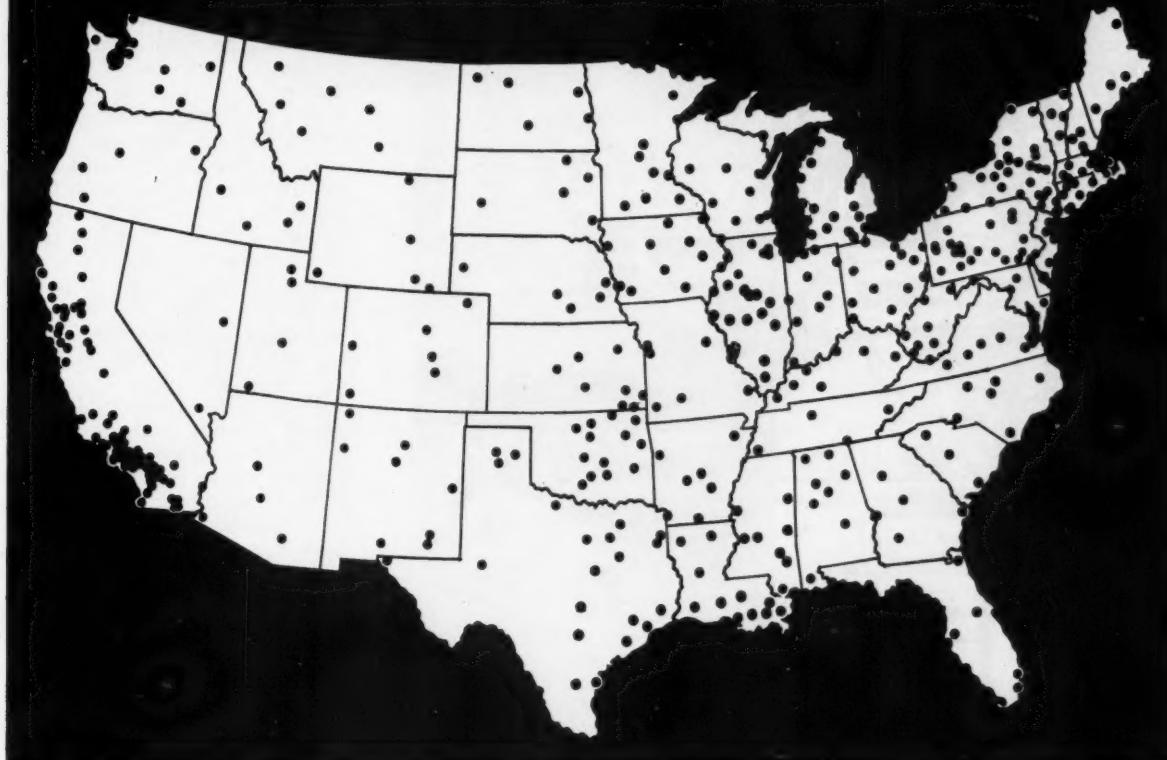
GET THE FULL STORY FROM YOUR ALLIS-CHALMERS DEALER

These are the highlights of a continuing program to give you the most modern tractors in the industry. Your Allis-Chalmers dealer is eager to tell you about these and other improvements and to prove their value with a demonstration. You will see that Allis-Chalmers tractors are built to step up output and cut your costs. *Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.*

WITH

**ALLIS-CHALMERS**  
**POWER** FOR A GROWING WORLD

# Wherever the job takes you...there's a LINDE Distributor near you!



From Brawley, California to Bangor, Maine . . . from Bismarck, North Dakota to Birmingham, Alabama . . . more than 500 LINDE Welding Supply Distributors and branch offices throughout the U.S.A. stand ready to give you "home town" service . . .

You'll find the LINDE distributor near you fully stocked

with familiar LINDE products of uniform quality . . . oxygen, acetylene and other industrial gases . . . the most advanced welding, cutting and heating equipment for your toughest metalworking jobs.

When you need welding supplies—look for a LINDE Distributor near you!



**NEW! Complete Directory of LINDE Distributors in handy booklet form!** Contains a complete list of all LINDE Welding Supply Distributors throughout the United States. Available free of charge to construction firms. Just clip the coupon to your business letterhead and mail it to us today!

FOR YOUR COPY—FILL IN COUPON, CLIP AND ATTACH TO YOUR BUSINESS LETTERHEAD

LINDE COMPANY, Division of Union Carbide Corporation  
270 Park Avenue  
New York 17, N. Y.

Please send me the new LINDE Welding Supply Distributors' Directory.

NAME \_\_\_\_\_

POSITION \_\_\_\_\_

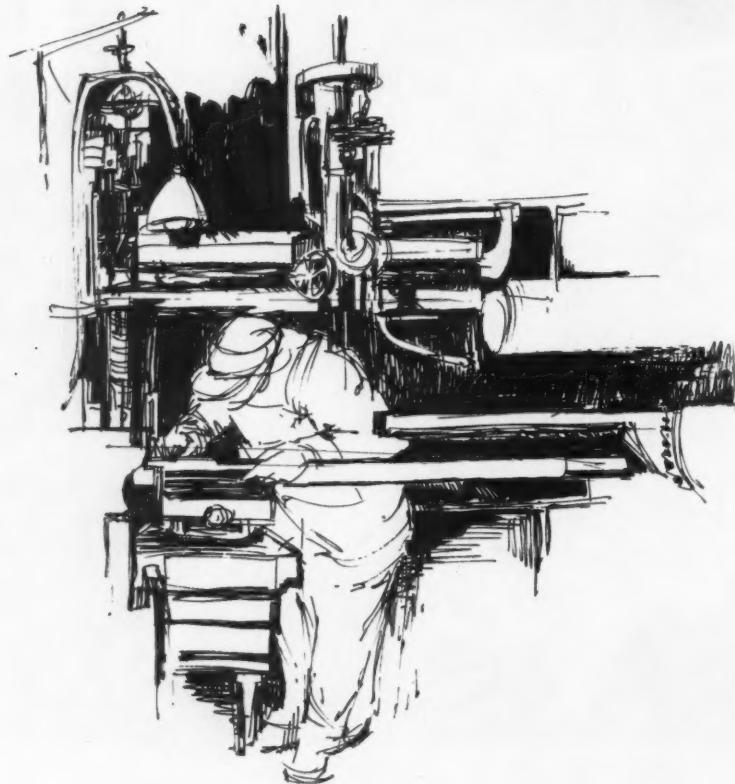


**LINDE  
COMPANY**

LINDE and UNION CARBIDE are registered trade-marks of Union Carbide Corporation.

TOOLS OF MAINTENANCE

## MACHINING



# Machine Tools Cut Downtime, Turn Out Parts to Order

WHEN A PIECE of equipment breaks down and a replacement part is not available, a machine shop that can make a part to order can get a contractor out of a jam and a rig back to the field with a minimum of downtime.

Contractors' machine shops usually are geared for just such emergencies, but they also turn out parts to order for the many custom-made or modified rigs that contractors operate. Outdated models of construction equipment often require custom-made parts because standard parts are no longer carried in dealers' stocks.

Thousands of such discontinued models still work on projects throughout the country. They're not as productive or as efficient as newer models, but most contractors are reluctant to junk them as long as they can keep them going with only minor repairs and replacement parts that can be made easily in the shop.

Many contractors set up elaborate machining facilities during World War II because parts were not available and shops had to make their own. Harrison Construction Co. of Pittsburgh is typical. Their machine shop was set up during the war to turn out a wide variety of components requiring a high degree of precision.

Harrison still makes their own parts whenever possible, but they employ only one full-time machinist. Any work he can't take care of is sent to outside shops.

Contractors with machine shops usually make their own shafts, pins, and bushings and cut grooves or keyways for hinges, yokes, and various connections. This work requires a high degree of precision, but it is not as complicated or as critical as reborning engine cylinders and regrinding crankshafts. These jobs are sent to dealers or engine shops that have specialized equipment.

The line-up of machine tools in a contractor's shop includes lathes, drills, grinders, and boring bars. Some shops also have punches, power saws, shearing

machines, and threaders that are used to fabricate special equipment for the field and the shop.

Lathes and drills are the most popular shop tools. Perini Corp. of Framingham, Mass., uses their 24-in.x20-ft Monarch lathe for a variety of tasks, including the honing of brake drums.

But most contractors send out brake work to specialized shops or dealers (although some reline brakes for trucks and small rigs). North Haven Construction Co. of North Haven, Conn., has a Star punch and rivet machine and handles their own brake work.

Eastburn Construction Co. of Newark, Del., own another piece of specialized equipment. Their Beaver Model A pipe and bolt threader was bought to fabricate hangers for a bridge job. The rig paid for itself on the job and now handles shop work by threading bars, bolts, and pipe fittings for use in the shop and field.

Some contractors' shops are equipped with specialized machine tools that are used primarily to fabricate equipment needed on construction jobs. Savin Bros. of Bloomfield, Conn., for instance, fabricated steel forms for a conduit job with a large shearing press and a combination punch and bar and angle cutter that they set up in their shop.

Once a contractor invests in machine tools and hires a competent operator, it's a good idea to keep them busy as much as possible so the equipment pays for itself. It's easy to make small, simple items like pins, shafts, and bushings, and most shops make their own even though the items are readily available from stock carried by local dealers.

Material for these parts can be stocked in extra lengths and cut off and machined as needed. This reduces the cost of replacement parts by giving a contractor the advantage of quantity buying.

When setting up a machine shop, tools should be arranged with plenty of room for moving materials and parts in and out of



DRILL PRESS enables shop to make mounting brackets and connections.



LATHES that can turn out shafts or bushings can cut equipment downtime.



SINGLE MOTOR powers several shop tools by driving shaft and pulleys aligned with tools on the floor.

the shop area. One tool should not obstruct the work at another tool. This is no problem with lathes but drills, shearing machines, saws, and threaders often work on parts that extend beyond the machine.

Machining equipment should be protected from other work in the shop. A separate building is best, but a closed-off portion of the shop often is more convenient because handling time is reduced.

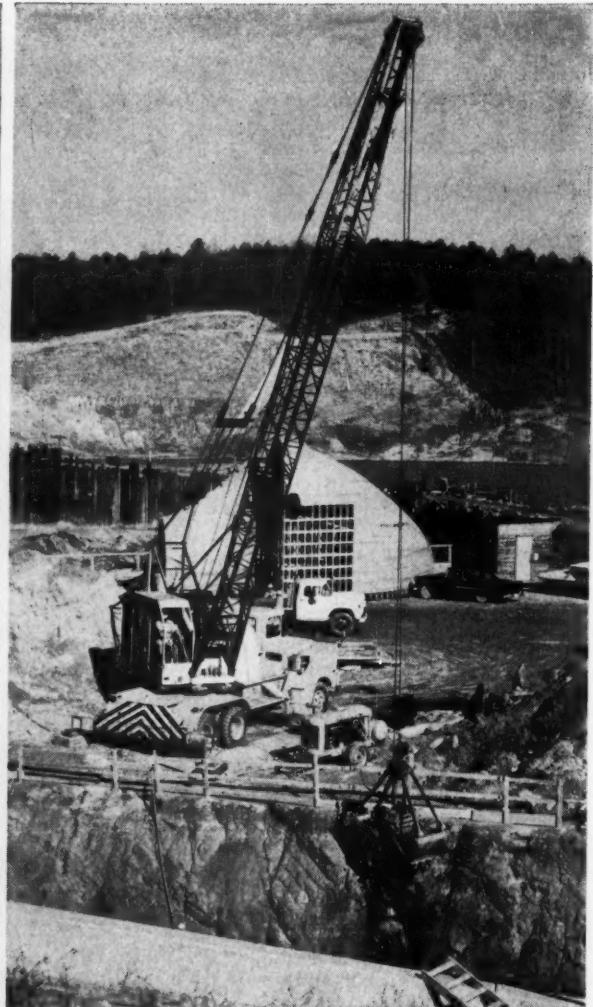
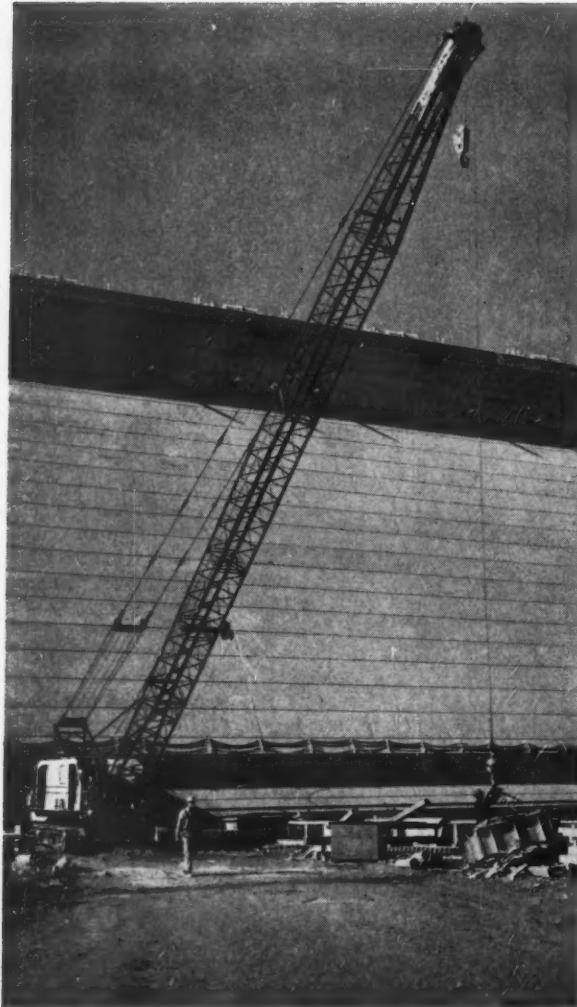
Usually, each machine tool is powered by a separate electric motor, occasionally, two adjacent tools will share the same power source. A separate motor for each piece of equipment too often represents a costly investment in motors that are idle most of the time.

One way to cut this investment is by combining several tools so that one motor can power any one or all of them. Cooke Contracting Co. of Detroit installed a single electric motor near the ceiling where it drives a long shaft fitted with pulleys aligned with machines on the floor. The motor can power Cooke's Superior drill, Cincinnati lathe, Ryerson bench grinder, and additional tools if necessary (see photo).

With such a set up, maintenance can be a problem because the numerous pulleys exert lateral forces on the shaft and wear out bearings quickly. Also, care must be taken to select a motor that is powerful enough to operate all the tools if they are to be used simultaneously. A smaller motor can be used if all tools will not be in use at the same time.

Shops that are not equipped with heavy machine tools sometimes can get along with hand-held units by increasing their precision with special attachments. For example, a hand-held electric drill can be installed in a stand equipped with clamps to hold the drill in place. A spring-loaded handle moves the drill vertically. It works like a drill press and handles small jobs accurately. The drill can be detached from the stand in just a few seconds.

**Grinders will keep your other shop tools in shape... see p. 120.**



## Johnson, Drake & Piper pick AMERICANS for Hartwell Dam project

50-ton crawler and 30-ton truck  
crane handle erection and excavating  
work on \$5.3 million powerhouse

JD&P ranks among the biggest contractor firms in the country. How did they get where they are? They'll tell you sharp equipment buying had a lot to do with it. The fact that they are long-standing users of AMERICAN cranes and excavators speaks for itself. And as you look around, you'll find this true of more and more of today's successful contractors . . . large and small.

Behind this acceptance is AMERICAN's completely modern design. There's *nothing* in an AMERICAN that's a warm-over of "yesterday's" engineering. That's why AMERICAN gives you such a perfect balance of power, weight, and strength. And that, in a few words, is the answer to AMERICAN's superior day-in, day-out performance.

Take a long, hard look at the way crane values have changed over the years. We're convinced you'll say AMERICAN has it . . . all the way.

CC-724

EXCAVATORS  
 $\frac{1}{2}$  to  $4\frac{1}{2}$  yds.

CRANES  
 $12\frac{1}{2}$  to 110 tons

DERRICKS-HOISTS  
to 800 tons

REVOLVER CRANES  
to 400 tons

FORGED FITTINGS  
FOR WIRE ROPE  
AND CHAIN  
(Crosby-Laughlin Div.)

**AMERICAN**

AMERICAN HOIST  
and DERRICK COMPANY  
ST. PAUL 7, MINNESOTA

Circle 118 on Reader Service Card

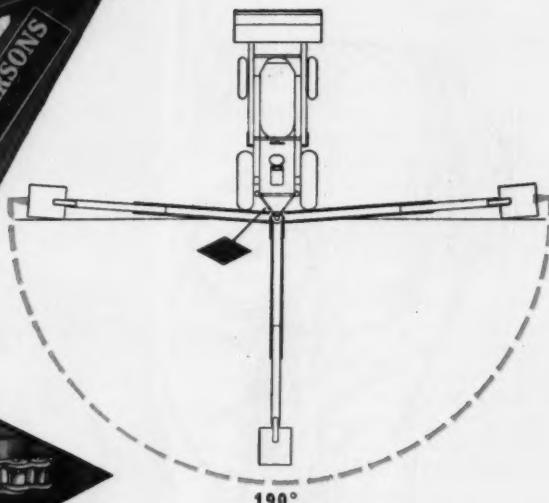
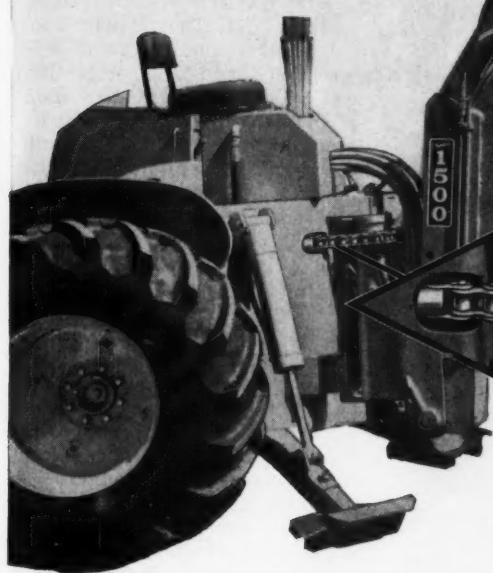
Major Equipment Manufacturers specify **DIAMOND** Roller Chain

## **PARSONS-SHAWNEE**

New "1500" Backhoe  
swings heavy loads through  
190° uninterrupted arc

with power transmitted by

# **DIAMOND** **ROLLER CHAIN**



Back and forth a hundred times a day, Parsons-Shawnee's powerful new "1500" Backhoe swings heavy loads from trench to truck. And a hundred times a day, smooth, accurate swing-and-stop power is transmitted by a **DIAMOND** Roller Chain.

- Your **DIAMOND** Distributor has all types and sizes of roller chains in stock. See the Yellow Pages of your phone book under "Chains" or "Chains, Roller" . . . or write the factory for new Catalog No. 760 and address of your nearest **DIAMOND** Distributor.

As have many other leading equipment manufacturers, Parsons selected **DIAMOND** because of its proven *strength* . . . its day-in-and-day-out *dependability* under severe operating conditions. There's no time for downtime when there's digging to be done!

### **DIAMOND CHAIN COMPANY, INC.**

*A Subsidiary of American Steel Foundries*

Dept. 418 • 402 Kentucky Avenue, Indianapolis 7, Indiana

Offices and Distributors in All Principal Cities

# **DIAMOND**



**ROLLER  
CHAINS**  
®

Circle 119 on Reader Service Card

TOOLS OF MAINTENANCE **GRINDING**



# **Grinders Keep Your Other Tools In Top Shape**

**AS ONE FOREMAN** told CM&E: "A shop without grinding tools would be like a barber shop without razor straps; every contractor needs grinders to keep his other tools in shape."

Every one of the more than 50 contractors' maintenance shops visited by CM&E has at least one bench grinder, as well as several portable types. Most shops also are equipped with one-purpose grinders that handle such specialized jobs as re-facing engine valves or dressing drill bits.

Power tool makers offer a great variety of portable hand-held grinders, and these are valued by maintenance men because of their flexibility.

Most grinders are electrically powered, but Thor Power Tool Co. offers a popular line of air-operated, hand-held units that can be used either in the shop or in the field. These are available in vertical, angle, and straight models, and they can be fitted with disks, cups or depressed-center grinding wheels.

Portable grinders see a lot of action in the welding shop, where they are put to work both before and after welding. Before welding, they remove rust and bevel edges to prepare metal surfaces. After welding, they remove hardened flux and smooth rough weld beads. The Norton Co. is one of several manufacturers who makes a complete line of grinding wheels for the welding trade.

Portable grinders can be converted to bench grinders by means of a stand similar to a vise. Milwaukee Electric Tool Co. offers a grinder bench base that is adjustable to hold any size and make of hand grinder.

The Rome Plow Co. makes a self-contained portable grinder for sharpening cutting edges on the job. On the larger of its two models, a 7-hp gasoline engine mounted on a portable stand transmits power to the grinding wheel through a 6-ft flexible shaft. The grinder is equipped with a 9x $\frac{1}{4}$ -in. reinforced carborundum grinding disk with a depressed center.

Bench grinders are available

from several manufacturers in sizes ranging from 6 to 10 in. A typical heavy-duty 10-in. model has a 1-hp electric motor that drives two grinding wheels at 1,750 rpm. Smaller models operate at speeds as high as 3,600 rpm.

Most contractors equip bench grinders with one coarse wheel and one fine wheel. Accessories available include wheel guards, tool rests and eye shields, all of which are recommended for operator safety. Pedestals also are available for mounting bench grinders at a convenient working height.

A West German manufacturer has introduced a new wrinkle in bench-type grinders. Carl Hirschmann Co., Inc., holds a patent on an electric-powered grinder with a vertical shaft that holds one grinding wheel. Six narrow slots cut radially into the 10-in. grinding wheel make the work clearly visible.

The spacing of the slots and the speed of rotation are matched in such a way that, by an optical illusion, the operator can actually see through the revolving disk and watch his work.

Gilbane Building Co. of Providence, R. I., recently bought one of these grinders, which are just now becoming available in this country. Gilbane's shop foreman is very high on the tool. "It's the biggest improvement in a shop tool that I've run across in the last year," he says.

Grinding disks for the machine are available with three grades of grit: fine, medium, and coarse. A set of attachments that holds work at the correct angle and distance also is available for precision grinding.

Every contractor who works on engines needs a valve refacing machine. Wet-type valve refacers assure precision refinishing by means of a swivel-mounted work head that holds valves at the proper angle. They are available with or without micrometer-feed butt grinding fixtures for squaring valve stems and grinding rocker arms. Black & Decker offers a model with an air-operated chuck on

the work head. Dressing attachments are provided on most models.

Valve seat grinding ordinarily is handled with a specially-equipped hand grinder. A pilot shaft inserted in the valve stem maintains alignment of the grinding stone, which is mounted on a special sleeve. A handheld driver powers the stone.

Valve refacers can be mounted on a work bench or table, but more often they are set atop caster-mounted cabinets that provide storage space for grinding stones and valve seat grinding equipment. These units amount to self-contained valve shops on wheels.

Take care to keep valve grinding tools clean when not in use. Usually manufacturers supply a plastic cover for the machines, but an even better way to protect this precision equipment is to build a cabinet for the entire unit. Fort Wayne contractor Ruckman & Hansen keeps their Sioux valve refacer in good condition by wheeling it into a wall cabinet made of plywood when the day's work is over.

A simple way to grind valves on small engines requires no expensive tools. All that is needed for grinding valves by hand is a rod fitted with a suction cup and a valve grinding compound such as that made by Permatex Co. of Brooklyn.

The service man smears compound on the underside of the valve and the valve seat. Then he presses the suction cup onto the valve face and inserts the assembly into the valve seat. Rotating the rod between the palms of his hands, he grinds valve and seat to a close fit.

Some shops are equipped with special grinding tools for dressing drill bits, but this work ordinarily is done in the field. Atlas Copco makes an air-operated, spring-loaded bit grinder equipped with a vise that holds drill steel. Two nuts provide adjustment of both angle and radius of the grinding wheel to fit any bit. Width of cut also is adjustable by a feed screw on the grinding wheel.



BENCH GRINDER with slotted grinding wheel lets operator see his work.

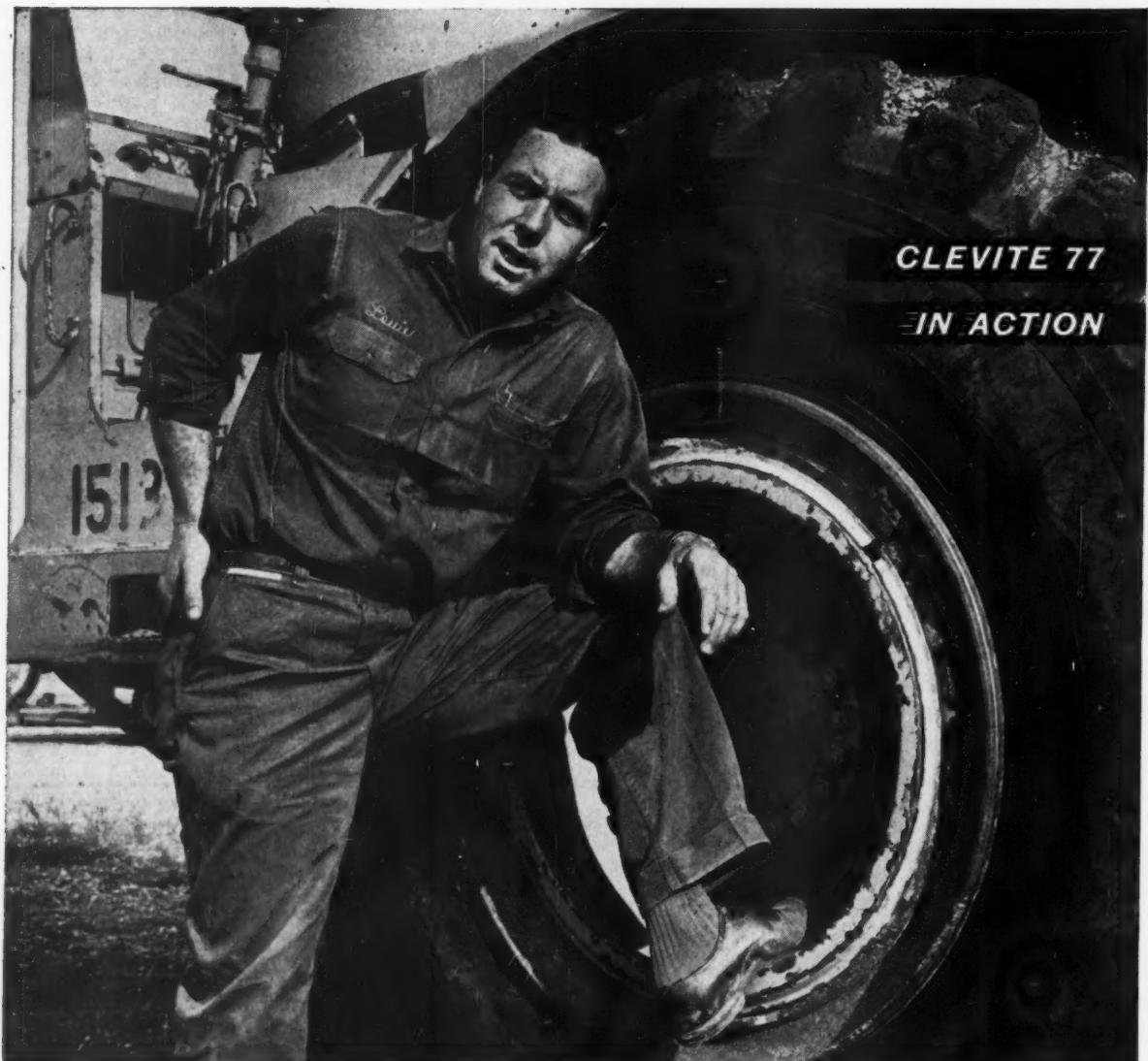


PORABLE GRINDER smooths the rough spots out of equipment maintenance.



VALVE GRINDER with swivel-mounted head is adjustable for precision valve refacing and stem squaring.

**A modern paint shop protects your equipment spread... see p. 124**



## "Clevite 77 keeps my equipment on the job longer..."

... because we don't have to replace Clevite 77 between major overhauls." Louie Ross knows his bearings. That's why he uses Clevite bearings to keep more than 100 pieces of equipment operating.

says Louie Ross  
Maintenance Superintendent  
G. C. McBride, Inc.  
Waco, Texas

Ask your NAPA jobber for the new, illustrated catalog of aluminum bearings for Caterpillar equipment. He has the complete line and the service to help you do a better, faster job.



## MONMOUTH *Engine Bearings*

CLEVITE SERVICE: Cleveland Graphite Bronze • Division of Clevite Corporation • Cleveland 3, Ohio

Circle 122 on Reader Service Card

## COMPACTION CLINIC

**Boosts daily dirt in place from 11,000 to 16,000 cu yd with same scrapers and tractors**

### Contractor switches to thin lifts and Duo-Paction

On a half-million cu yd of fill for a huge shopping center, the contractor\* started the job by moving dirt into the fill area in eight-inch lifts—filling in one area while another was sheepfooted with five crawler tractors. Use of this project-type compaction method limited production to 11,000 cu yd per day.

The contractor then switched to the progressive method of dumping, dozing and blading, followed by Duo-Paction with three Duo-Pactors. Three passes provided the required high density and readied the fill for the next lift.

Rolling at speeds up to 7 mph, the Duo-Pactors worked in cycle with the scrapers. Unloading in thin lifts on the run also aided material pulverization, minimizing dozer and grader requirements.

**Results were so satisfactory that with no increase in the scraper fleet, productivity increased from 11,000 to 16,000 cu yd per day.**

Work was done in the midst of the rainy season. At day's end, or ahead of thundershowers, the Duo-Pactor's steel roll was lowered,

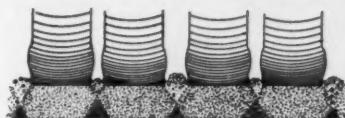


Sand fill in 3 in. lifts, spread and compacted in one pass at more than 10 mph.

to smooth and seal the fill surface. Runoff was so complete that work could be resumed almost immediately, even after a heavy rain.

### More Uniform Densities with Duo-Paction

With either deep or thin lifts, material displacement is the arch-enemy of uniform, low-cost compaction. Displacement takes place when wheel loadings exceed the bearing



Closely-spaced tires minimize displacement and promote material confinement.

value of the material. *The wider the tire spacing, the greater the displacement.*

Duo-Pactors provide a narrow spacing between tires, thus confining the materials to full rolling width but still having individual tire movement and controlled oscillation in pairs.

This is one reason why the Duo-Pactor has conclusively proved its ability to obtain uniform, high density compaction not only on fills and embankments, but also on sub-base or base materials and stabilized surfaces, *at immense savings in man and machine hours*. Uniform density is further assured by lowering the steel roll, forcing ridged material down between the compacted tire tracks, further preventing displacement.



From coast to coast, Seaman DUO-PACTORS have job-proved their ability to meet the most rigid density specs, while saving up to 75% in man-hours, and up to 50% in equipment cost, on all types of compaction, from fill to finish.

There's a Seaman Duo-Pactor, Tri-Pactor, or Vibratory Impactor to match your exact job requirements—Write today for specification sheets!

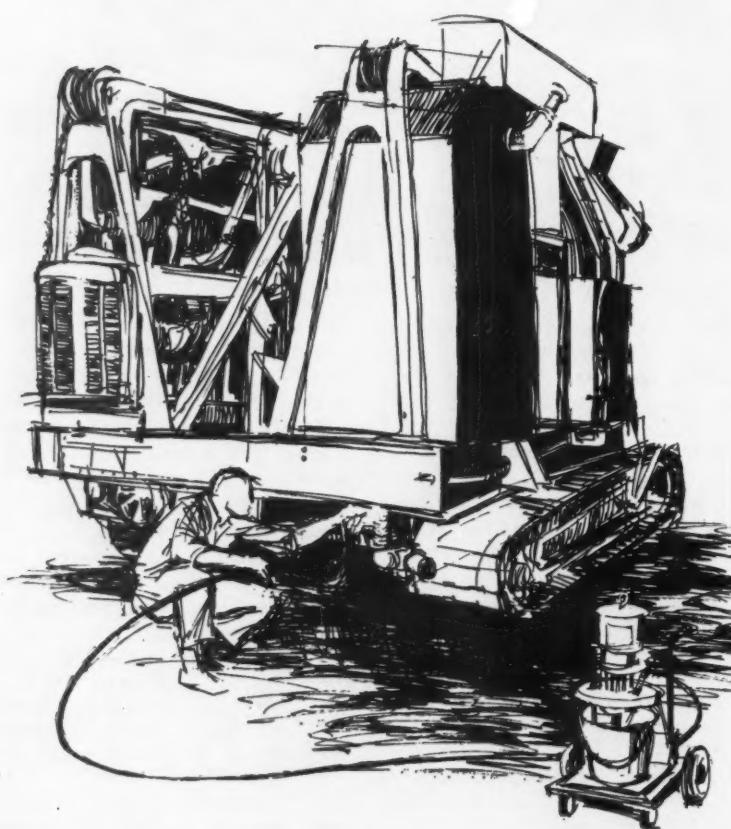
\*A certified contractor report from Seaman Corporation files

*Please send me Specification Sheets as checked below:*

**SEAMAN-GUNNISON**  
DIVISION OF  
**SEAMAN CORP.**  
MILWAUKEE, WISC., U.S.A.  
P.O. Box 3025, Milwaukee 18, Wis., U.S.A.  
Tel.: SUNset 1-8900

<input type="checkbox"/> 7-20-ton Duo-Pactor <input type="checkbox"/> 9-27-ton Duo-Pactor <input type="checkbox"/> 10-30-ton Self-dumping Duo-Pactor <input type="checkbox"/> 8-20-ton Tri-Pactor <input type="checkbox"/> 10-27-ton Tri-Pactor	<input type="checkbox"/> Pull-type Vibratory Impactor <input type="checkbox"/> Self-Propelled Vibratory Impactor <input type="checkbox"/> Utility 6-yd Scraper <input type="checkbox"/> Bituminous Distributors <input type="checkbox"/> Street Flushers
---	--

Circle 123 on Reader Service Card



# Trend is Toward Hot Spray Paint Equipment

**A GOOD PAINT JOB** won't make a piece of equipment run better, but it might make it run *longer*.

It's a lucky rig that isn't exposed to the ravages of rust during a typical construction season. And when a machine isn't working, chances are that it's being stored out of doors. The best reason for regular painting is to cover the metal surfaces exposed by the abrasive action of rock, dirt, and aggregates.

A survey of construction companies points up several other reasons why smart contractors consider painting an important part of their overall maintenance programs.

An important factor is that the operator of a good looking rig has more pride in his equipment. He's much more likely to keep it in top shape by making minor adjustments—by fixing the so-called little things before they add up to big repair bills.

Increased trade-in value also ranks high on the list. Most contractors know that there is a strong relationship between price and appearance when it comes time to trade in a rig. And distributors will tell you that a machine that looks in good shape generally is in shape.

Maintenance-conscious contractors also say that a good paint job makes it easier to spot minor troubles that might go unnoticed on a dirty or rusty machine. Prompt attention often keeps the small service job from becoming a major repair.

Many contractors paint their machines for identification, usually in some special color. In such cases even new equipment is painted before it goes out into the field.

Painting the contractor's name and address on his machine also identifies him and advertises his firm. (But sign painting usually is left to professionals. Contractors are switching from painted signs to decals to avoid the expense of hiring outside help.)

A wide range of paint spraying equipment is available to the contractor. He also has a choice of three different types: air spray, airless spray, and hot spray equipment.

All contractors use manual spray guns with any of the three methods of spraying. Air spray equipment is the most popular, but only because it is the oldest method of high-speed painting. Many contractors are using equipment purchased years ago.

When compressed air is used for atomizing paint, more than 600 parts of air are needed for one part of paint. This large amount of air produces turbulence and wastes paint, because as much as 50% of the coating material never reaches the surface being painted.

The rest of the paint forms clouds that have to be removed with exhaust systems. And the painter needs a protective mask or respirator to avoid breathing in the paint. Another drawback is that the paint must be mixed with a thinner, or it is too viscous for spray guns.

A newer method of applying paint is by airless, or hydraulic, spray. This equipment usually is air powered also but no air is used for atomizing the paint. Instead, it is atomized by discharging it through an orifice under hydraulic pressure. Compressed air or electrically driven pumps produce the hydraulic pressure.

An airless spray cuts down air turbulence and reduces bounce-back and overspray and saves paint. Many contractors are going from the air-type spray to airless whenever new painting equipment is bought.

Many contractors have gone one step farther by changing to hot airless painting equipment. The spray guns are the same as those used for airless or hydraulic spraying, but a heater is added to raise the temperature of the paint to make it thinner and easier to handle with the airless guns.

One advantage of a hot spray system is that no thinner is needed for the paint. This reduces paint clouds and cuts waste. Also, for most small paint jobs, the spray is kept to a minimum and the painters can get along without an exhaust system and sometimes even without a mask.



AIR SPRAY GUN needs supply of compressed air to atomize the paint.



AIRLESS SPRAY GUN atomizes paint by forcing it through special orifice.



HOT SPRAY GUN is either air or airless, but the system incorporates a heater to warm and thin the paint.

Contractors can buy a hot spray system as a unit or convert an existing system by adding a heater. Harrison Construction Co. of Pittsburgh converted its DeVilbiss air-type painting set to a hot spray system by adding a resistance-type heater and a pump that continuously recirculates the paint while the unit is in operation. Harrison's painter estimates that this system cuts waste by as much as 60% when compared to a non-heated system.

Other advantages of a hot spray system are fast drying, and the fact that only one coat of paint usually is sufficient. Because most contractors paint their equipment right in the shop, it is necessary that the paint dry fast so the freshly painted rigs will not pick up dust when other work resumes in the shop. And because no thinner is mixed with the paint, it covers better so that the contractor can get away with only one coat.

Most manufacturers that make paint spraying equipment offer the contractor a choice of any of the three systems. The DeVilbiss Co. of Toledo, Ohio; Binks Manufacturing Co. of Chicago; Alemite Div. of Stewart-Warner Corp. of Chicago; Nordson Corp. of Amherst, Ohio; and Aro Equipment Corp. of Bryan, Ohio, all make painting equipment and accessories that are popular with contractors' maintenance people.

For nearly all painting systems, you need a compressor to supply air for spraying paint or for producing hydraulic pressure in an airless system. Here again, a wide range of equipment is available to suit each contractor's particular needs and work load.

Most paint equipment manufacturers also make compressors and other accessories. Chances are that you already have some sort of central compressed air system in your shop and that it can be easily adapted to your needs.

Make sure you select the proper size compressor. This is especially important if painting



Thousands of leading American companies keep their investment at a minimum with a 'Jeep' fleet. Great versatility and low initial cost give you the most versatile vehicle you can possibly get for your money! Traditionally rugged 'Jeep' construction keeps maintenance costs low, and the resale value high. Get in touch with us today for complete

**Jeep**  
VEHICLES®

information! Write to: Robert J. Kreusser, Fleet Sales Manager, Willys Motors, Inc., Toledo 1, Ohio.



**'JEEP' FLEETS—FROM THE WORLD'S LARGEST LINE OF 4-WHEEL DRIVE VEHICLES**  
Willys Motors, Inc., Toledo 1, Ohio. One of the growing Kaiser Industries.

and other shop activities are carried on during the day, when others also need air.

Contractors who do their painting at night should have no problem, because at night the compressor system will handle only painting. The standard shop air system should be able to handle this load. A single spray gun requires only 20 cfm at 100 psi.

When selecting a compressor, don't be afraid to use a size larger than needed. Larger units cost only a fraction more, yet offer several advantages. Motors and compressors of larger sizes are more efficient than smaller ones. They can handle peak loads without strain, and there is no waiting for pressure to build up. Bigger compressors work less and have plenty of time to cool; this increases their efficiency even more.

For spray painting, it is important that spray equipment has a continuous air supply. Many contractors who have separate paint shops often equip them with separate compressors and air systems that are used only for painting. This is probably the best arrangement, because then painting is completely independent from the rest of the shop work.

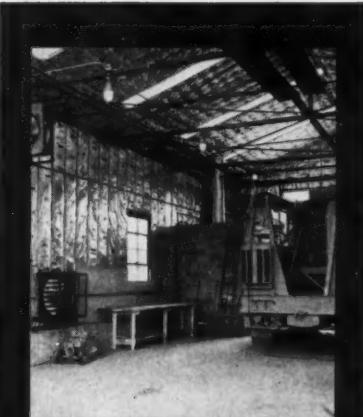
Another approach to insuring a proper air supply is the addition of a second or third compressor to an existing air system. This is more costly than using one large compressor, but it has the advantage of insuring an air supply even if one compressor should fail. Lack of compressed air can foul up a paint system quickly and cause costly repairs.

The Tri-State Construction Co. of Indianapolis is one firm that has a multiple compressor system that supplies air to operate shop tools and to power paint-spray equipment.

If no special paint building is available, the contractor should consider running air supply lines out to his yard. In such a setup, a central air system supplies all his shop needs, powers the painting tools at night, and takes care of minor paint jobs in

## PAINTING...

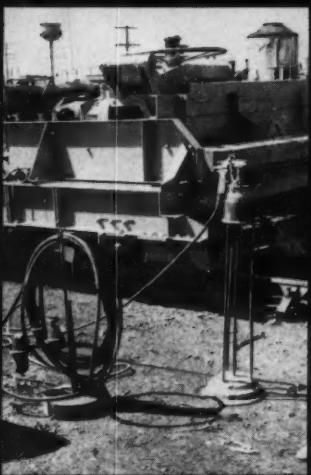
CONTINUED FROM PAGE 125



PAINT SHOP contains explosion proof exhaust fans, furnace, compressor.



YARD AIR SYSTEM delivers compressed air for small paint jobs outdoors.



ACCESSORIES hold spray gun, hoses, moisture trap to keep them off the ground and clean for outdoor work.

the yard whenever the weather is good and the shop is taken up by more pressing work.

Cooke Contracting Co. of Detroit has extended its shop air system to the yard and finds it useful for touch-up work and for painting small rigs. Air supply lines run under ground to boxes throughout the yard; control valves in the boxes avoid trips back to the shop to turn air on and off.

When painting outdoors, take care to keep tools off the ground because paint picks up dirt easily. Cooke's painter fabricated special stands for the firm's DeVilbiss spray guns and hoses. He also added a moisture trap on the hose stand to insure dry air to the spray guns.

Contractors who do most of their painting outdoors and who don't want to invest in an extra air distribution system can buy self-contained paint spraying rigs mounted on wheels. The rigs are equipped with an engine or electric motor, a compressor, paint containers and hoses, an air-driven paint pump, and a heater if a hot spray system is used. No compressor is needed in an airless system because the engine or motor can drive the paint pump directly.

If a self-contained system is too expensive, a contractor can use a portable compressor to supply air to his painting equipment.

For small paint jobs, you may not want to bother with regular units because of the big problem of cleaning them. For such cases, a variety of aerosol-type paint cans are available that contain everything from rust remover and primer to various finishes and enamels. These usually are handy for painting over repair welds, bolts, or other small areas.

And don't forget the old fashioned way of painting with a brush. It's good for touching up a rig's paint job to keep it looking good even out on the job. When a rig is temporarily idle, the operator can go over it touching up scratches and dents to prevent rust and make the paint job last longer.

*continued on next page*

Hand spray guns that carry their own supply of paint in a can at the gun also are handy for touch up work in the field. Such paint guns need only a supply of compressed air that can be provided by a lub rig's compressor during regular servicing. To prevent rust, it's a good idea to paint over welds and other repairs that have been made in the field.

A new compound developed by West German chemists may go a long way toward preventing rust, but the compound is not yet available commercially. The liquid chemical changes rust into a protective film that serves as an undercoat for all standard finishes. The rust converter can be applied with a brush or spray gun or parts can be dipped in it.

Painting takes a considerable amount of time because there are few easy-to-paint, flat surfaces on construction rigs. Automatic equipment is useless. And equipment must be cleaned thoroughly before paint is applied (see story on p. 82).

To minimize production losses caused by taking machines out of operation, practically all contractors paint their equipment during the winter. Most work is done in their home shops where facilities are adequate, although sometimes large projects have elaborate field shops that can handle painting at the job site.

But painting in the winter in the home shop utilizes the contractor's manpower more efficiently. Usually one or two men are responsible for the job. They work as painters in the main shop during the winter, are mechanics in the summer.

Some contractors paint their equipment every year; others paint machines only after a major overhaul. Perhaps the best program is somewhere in between, that's because some equipment goes a long time between overhauls while other machines may need major work before their paints are worn off.

Because most painting is done at the home shop, facilities must be provided where other equipment will not get in the way.

## PAINTING...

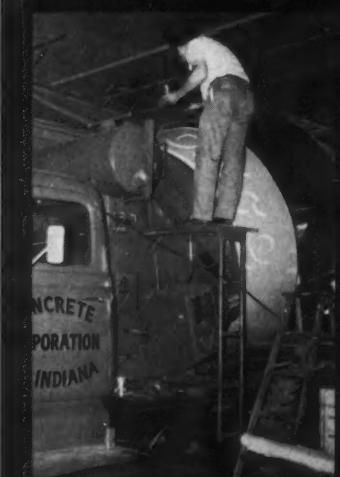
CONTINUED FROM PAGE 127



PRESSURIZED CAN contains paint and compressed air for small paint jobs.



TOUCHING UP by hand keeps a rig's paint job in top shape in the field.



PAINTING SIGNS on equipment is a manual operation usually left to professionals hired by contractors.

A separate paint shop or shed is best, but a separate building is expensive and takes up valuable yard space.

Painting in the main shop is not practical during the day because paint clouds endanger other mechanics, and paint that settles on exposed precision parts contaminates them. Because of these considerations, painting generally is done on the night shift.

A separate building avoids these problems and permits painting to be done during the regular work day. But only a few contractors have separate paint shops.

Some try to paint their equipment outdoors. This is not a good practice because wind carries dust and dirt that settles on freshly painted equipment.

Most contractors without separate paint buildings set aside some part of their shop for painting equipment. The Lathrop Co. of Toledo paints its machines in the same shop area where greasing and other service operations take place. The shop is equipped with exhausts, a pneumatic lift, and the necessary painting equipment.

A good time to think about painting facilities is during the construction of a new shop.

Williams Construction Co. of Baltimore recently did just that. Moving to a new location, Williams set up a brand-new shop and a fully equipped, 25 x 40-ft paint building. It is enclosed completely and opens into the yard—not the main shop. The building is equipped with explosion-proof electric motors for exhaust and ventilating fans and lights are enclosed in special protective globes.

The W. L. Harper Co. of Cincinnati has a similar building. It has explosion-proof electric fixtures, reflecting insulation, and exhaust fans near the floor so that heavy paint clouds can be removed easily.

The building also has a furnace closed off from the main part of the building that is accessible only from the outside. A separate compressed air system powers painting equipment.

**New lubrication rigs speed this important task . . . p. 132.**



**ANNOUNCES  
A NEW CONCEPT  
IN  
TRUCK CRANES**

**TYPES**

<b>250-T</b>	<b>300-T</b>	<b>350-T</b>	<b>450-T</b>
25 ton	30 ton	35 ton	45 ton

Completely new from the ground up, Lima's modern, low silhouette, Types 250-T, 300-T, 350-T and 450-T have been designed and engineered for one purpose only—to perform as top-production truck cranes under the toughest field conditions. On-the-job studies have proved the need for Lima's new concept.

**Check the following profit-making features:**

- Perfectly balanced to handle long booms easily, safely. Lifts long booms from the horizontal without assistance.
- Optimum weight distribution for highway travel with a minimum of disassembly.
- Easily stripped for weight limitations—counterweight and both outrigger boxes easily removed.
- Ball bearing swing circle—smooth, precise swings.
- 170' to 180' booms plus jibs, 100,000 psi yield strength steel, tubular construction.
- Exceptionally wide and deep boom cross sections.
- Telescopic safety boom stop, with automatic safety shut off to boom hoist.
- Rotating assembly through in-line shaft design achieves a lower center of gravity, producing greater stability for low boom operation. Exceptional drum cable capacity.
- Unit construction—rotating base, rear end unit and machinery side frames form one complete welded assembly for

added strength and rigidity.

- Integrally designed third hoist drum, optional, utilizes full size clutches and brakes.
- Dual control mechanical and air swing brake—one locks rotating base, the other is used to snub for precision work.
- Telescopic gantry is powered up and down—removes rear counterweight.
- Optional reduction gear unit for reduced machinery and line speeds without loss of power.
- Boom point section folds under for highway travel.
- Full vision cab—360° visibility for safest operation.
- Easily maneuvered on or off the road—travels at highway speeds.

We urge you to get the complete story on Lima's newest approach to the most-for-your-money in Truck Crane productivity, dependability and economy. See your local Lima distributor today or write to us.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

**LIMA** Construction Equipment Division • Lima, Ohio  
**BALDWIN** • **LIMA** • **HAMILTON**

Circle 129 on Reader Service Card



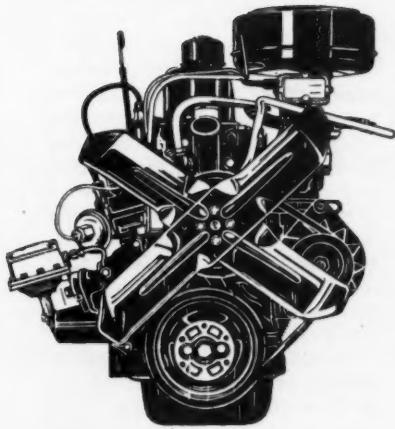
THE NEWEST REASON TO MAKE  
YOUR NEXT CHASSIS A FORD

**ALL-NEW FORD  
BIG SIX  
262 CU. IN. TRUCK ENGINE**



FORD DIVISION, *Ford Motor Company*,

New F-600 toughness! New stronger frame...huskier cab...rugged truck suspension that can give twice the front tire life of other types!



Now, the economy of a Six is combined with the dependability of heavy-duty, *exclusive-truck* engine design. In independent tests, Ford's new Big Six was pitted against the major competitive Six. Certified\* result: Ford Trucks gave 13.5% better gas economy! And Ford recommends 34% fewer service operations in 25,000 miles of customer service. This means less time in the shop . . . more time on the job.

The new Big Six is one of *four* engine choices in Ford F-600 trucks for '61—including America's most popular truck V-8's. See your Ford Dealer. He will be glad to help you select the best engine for your job.

\*Tests simulated typical city delivery and shuttle service

## SEVEN MORE REASONS

### WHY IT'S GOOD BUSINESS TO DO BUSINESS WITH FORD!

You save from the start with Ford's traditionally low prices, and your savings continue with low operating and maintenance costs. These facts are documented by certified test reports from America's foremost independent automotive research firm. Ask to see these reports. They're on file at your Ford Dealer's.

In addition to these dollar-and-cents savings, the following bonus benefits are yours with Ford Trucks:

1. **Rigid quality controls** give you the strongest safeguard of truck reliability ever. Modern, *exclusive-truck* manufacturing facilities, with emphasis on quality every step of the way, are designed to give you a Ford Truck that is as free from defects as a truck can be. Tangible results of these high standards are Ford's new warranties.
2. **Exclusive 100,000-mile warranty** (or 24 months) on 401-, 477- and 534-cu. in. Super Duty V-8's is the most liberal in the industry. Each major engine part (including block, heads, crankshaft, valves, pistons, rings), when engine is used in normal service, is warranted by your dealer against defects in material or workmanship for 100,000 miles or 24 months, whichever comes first. The warranty covers full cost of replacement parts . . . full labor costs for first year or 50,000 miles, sliding percentage scale thereafter.
3. **12,000-mile warranty** (or 12 months) on all 1961 Ford Trucks of every size is further evidence of the confidence Ford has in its quality controls. Each part, except tires and tubes, is now warranted by your dealer against

defects in material or workmanship for 12 months or 12,000 miles, whichever comes first. The warranty does not apply, of course, to normal maintenance service or to the replacement in normal maintenance of parts such as filters, spark plugs and ignition points.

4. **Special fleet financing** can be arranged by your Ford Dealer. It's available for owners of two or more trucks, and provides the opportunity to precisely tailor payments to your income patterns or depreciation schedules. This fleet-fitted financing offers substantial savings and frees your working capital.

5. **Sales engineers and service specialists** in 36 district offices are on call to solve special truck problems. Working with both dealers and customers, these experienced truck men represent another extra step Ford takes to provide your continued satisfaction.

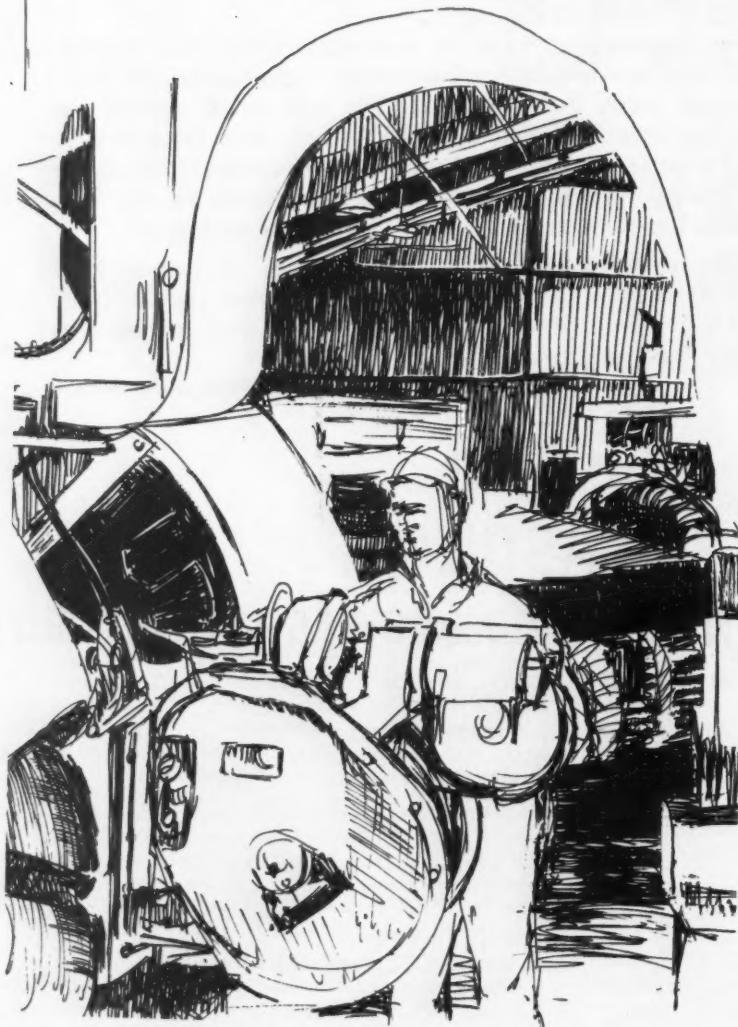
6. **Replacement parts depots** at 26 strategic locations across the country quickly supply needed parts from ample stocks. Ford's entire supply system is geared to give you faster service and reduce costly downtime . . . wherever you are.

7. **6,800 Ford Dealers**, including 280 specialized Heavy Duty truck dealers, can keep your trucks ready to go wherever they go. From coast to coast, fast Ford service—gas and Diesel—is always close at hand.

From Super Economy pickups to Diesel-powered tractors, you can now fill every truck need up to 76,800 pounds GCW with a modern, money-saving Ford Truck.

**FORD  
TRUCKS  
COST LESS**

SEE YOUR FORD DEALER'S "CERTIFIED ECONOMY BOOK" FOR PROOF!  
Circle 131 on Reader Service Card



# **Equipment Makers And New Lube Tools Speed Servicing**

**LUBRICATION**, the backbone of every contractor's maintenance program, often is the deciding factor between making a profit and showing a loss.

New developments for both field and shop lubrication continue to make the maintenance man's job easier and the contractor's maintenance program more effective.

Manufacturers of construction equipment are helping out by combining many grease fittings at one location, and by color-coding individual fittings to prevent mistakes.

In past Equipment Maintenance Guide issues, CM&E has covered both shop and field lubrication practices in detail. The purpose of this article is to bring you up to date on recent developments.

Here's a run-down on some of the newer lubrication tools:

- Pneumatic tools now can be lubricated and cleaned at the same time — without taking them apart.

- A new grease gun has a built-in light that makes it easy to see what you're doing in hard-to-get-at places.

- Several new lube rigs incorporate self-contained compressed-air supplies so that they can be used outside the shop.

- Test kits and meters now are available that analyze the over-all condition of an engine, as well as indicating when oil or filters must be changed.

- Centralized lubrication systems also are beginning to show up on stationary equipment such as crushing and screening plants and concrete plants.

Combining cleaning and oiling at the same time speeds the servicing of pneumatic tools ranging from the smallest grinder to the heaviest jack hammer. The Von Arx cleaner-oiler, made by The Marindus Co., Inc., of North Bergen, N.J., services air tools without disassembly.

The unit consists of a two-compartment cylinder and control valves, gages, and connections. It works on compressed air with pressures up to 140 psi. One of the tank's compartments

contains a solvent, the other oil. For cleaning, both solvent and oil are supplied to a tool by a hose connected to the tool's air hose coupling.

During servicing, the solvent compartment is opened and compressed air forces the solvent into all working parts of the pneumatic tool. Then the solvent is shut off and the oil supply is turned on. This lubricates all working parts, completing the servicing operation. It takes 3 min to service a paving breaker.

Lubricating a big earthmover or other construction machine is more of a problem. A hundred or more points may need grease, but the fittings are not always easy to reach, or even to find. Sometimes fittings are neglected and this often leads to damage and downtime.

One way to insure proper lubrication and to cut servicing time is to install centralized lubrication systems. These are becoming more and more popular for stationary equipment such as crushers and screening plants but tractors, scrapers, and other mobile rigs still have this development ahead.

But a start has been made. A system designed by the Alemite Co. has been installed on a bituminous finisher. It greases more than 100 fittings in 2 min.

In a centralized system, lines from a single reservoir supply grease to all the points where fittings normally would be located. A pump services all points simultaneously.

On a complex construction machine not all points need greasing at the same time. To avoid wasting grease or flooding the grease points, two or more grease distribution systems can be incorporated in a centralized system.

One distribution system can cover all points that need frequent servicing, say every 4 hr. Another system can handle only the points that need daily, or 8-hr, service. A third system may include points that need grease only once a week, or every 40 hr. In this way, centralized systems can meet the requirements of any machine.

A centralized system is expensive because of the skilled manpower needed to install it. But on a complex machine it may easily pay for itself because it cuts down service time and prevents breakdowns.

On machines that require different kinds of lubricants at different points, care must be taken to avoid misapplication of the various greases and oils. To help the maintenance man, some equipment manufacturers are trying out color-coded grease fittings. In such a system, all fittings that need the same lubricant have the same color.

Finding a grease fitting is not always an easy task because many parts of a machine are hard to reach, or because daily servicing is done at night. To see what he's doing, a maintenance man can use a combination grease gun and light that has just recently been put on the market (see photo).

The gun works on compressed air just like any other air powered grease gun or control valve. A single control operates both light and gun: a slight finger pressure on the trigger turns on the light and additional pressure dispenses the lubricant. The tool is made by the LubriLite Corp. of Libby, Mont.

Most lubrication equipment is powered by compressed air supplied either by a lube rig's compressor in the field or by a shop air system. Sometimes greasing is necessary where no compressed air is available. Then the contractor must rely on hand-operated grease guns or units with self-contained compressed air systems such as the AroPak lubricator made by the Aro Equipment Corp., of Bryan, Ohio.

This unit carries air and grease in a pressurized container equipped with a short hose and control valve. The Aro-Pak holds 5 lb of lubricant and develops up to 7,500 lb of pressure. Its air supply is permanent, but it should be checked once a year. Any air-operated grease pump can refill the unit through a grease fitting in its top.



LUBE GUN with built-in light helps find grease fittings in dark areas.



CLEANER-OILER handles two pneumatic tool servicing operations at once.



SELF-CONTAINED lubricator carries own compressed air supply in tank equipped with hose and grease gun.

*continued on next page*

Hand-operated oil cans are standard equipment in everybody's shop. But a variety of lubricants now are available in aerosol cans that are handy for spray-type applications of oil, graphite, and other products. Sprayon Products, Inc., of Cleveland markets a line of aerosol-type cans containing various lubricants, cleaning solutions, and paints.

Oil changing also is a major item in a contractor's maintenance program. Equipment manufacturers and oil companies recommend varying oil change intervals for different machines operating under a variety of conditions. Changing oil gets rid of impurities in the crankcase, but it does not give the operator a good idea of the condition of his rig's engine.

If you want to keep close tabs on equipment you may want to invest about \$150 in a test kit that analyzes crankcase oil, shows when to change the oil or the filter, and indicates when an engine needs attention because of oil contamination.

Simple test kits made by The Gerin Corp. of Avon, N.J., and by Lengor, Inc., of Annapolis, Md., detect fuel dilution, water and antifreeze leakage, acidity, metal particles, dirt, and other contaminants that indicate the condition of an engine. Regular oil tests can warn an operator that something's wrong with his engine, and prompt attention can avoid major trouble.

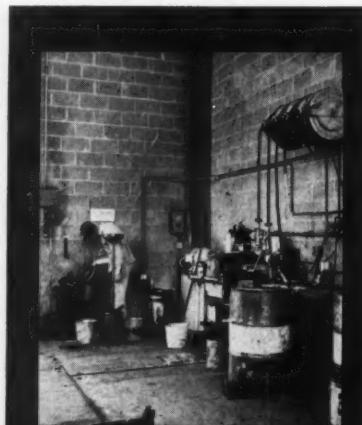
Testing engine oil with a kit is a simple procedure that takes only about 5 min.

Another quick way of checking an engine is with a new meter device that can be installed on the engine. It indicates the condition of the oil even when an engine is running. The Gerin Corp. makes gage-type meters that are specially designed for gasoline and diesel engines. Once installed they can be read any time by the operator or a maintenance man.

Contractors who place enough importance on analyzing engine oil sometimes use both a meter and a test kit: the meter is handy for field use; the test kit

## LUBRICATION . . .

CONTINUED FROM PAGE 133



SERVICE AREA contains lift, hose reels for grease, hand pumps for oil.



PORABLE DRUM on three-wheel dolly delivers lubricants wherever needed.



LUBE RIG on small trailer is equipped with engine, and compressor, and delivers three lubricants and air.

gives more specific results and is useful in the shop where more time is available.

These new tools make maintenance work easier, but they only supplement—not replace—the contractor's present lubrication equipment in the field and in the shop.

Portable lube rigs are the workhorses in servicing machines, and most shops have just enough equipment to take care of oil changes and lubrication when machines are overhauled. Shops with a special servicing area usually are equipped with a pneumatic lift and hose reels mounted on the wall or ceiling.

If a big machine must be lubricated at the home shop, it is usually moved out in the yard, where a portable lube rig handles the job. Inside the shop, big rigs cannot be moved about so lubricants must be moved to the rigs instead.

An easy way of doing this is to mount a lube drum on a dolly or a cart and equip it with air-operated pump that can be connected to air outlets anywhere in the shop.

The pumps, hose, reels, and fittings used for shop lubrication are the same as those found on portable lube rigs. This type of equipment is made by Alemite, Aro, Balcrank, Graco, and Lincoln. These manufacturers, and others like DeVilbiss, Bennett, and Eagle, also make the various hand-operated oil cans and grease guns.

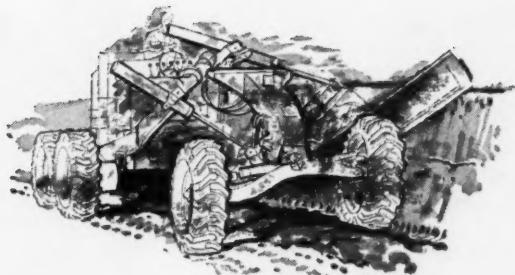
A few contractors try to keep shop servicing to a minimum and get along with hand operated grease guns and lube pumps. A small portable lube unit for use both in the shop and in the yard may supplement the hand tools.

Cooke Contracting Co. of Detroit carries three lubricants and air on a small trailer. It is equipped with a Quincy compressor powered by a one-cylinder Briggs & Stratton engine.

This rig is handy because it does not depend upon the shop's compressed air system and can go anywhere in the shop or yard. It can even be used on the job if needed.

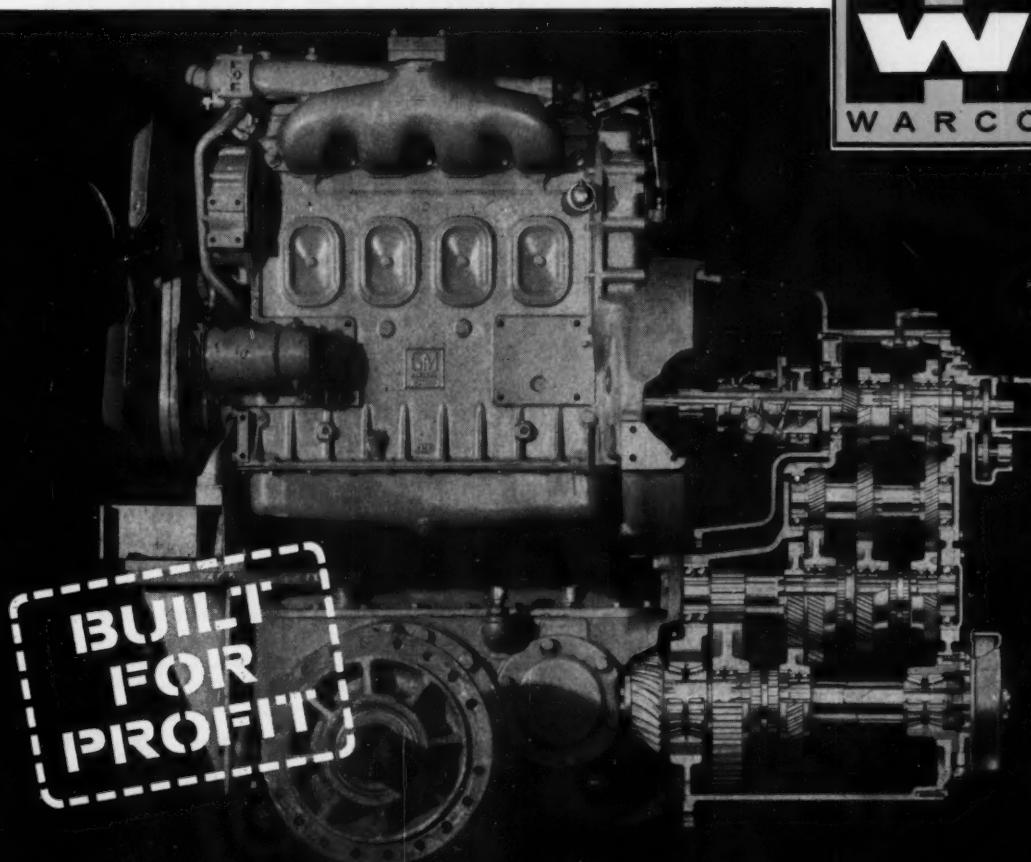
**Specialized tools make it easier to service components... see p. 144.**

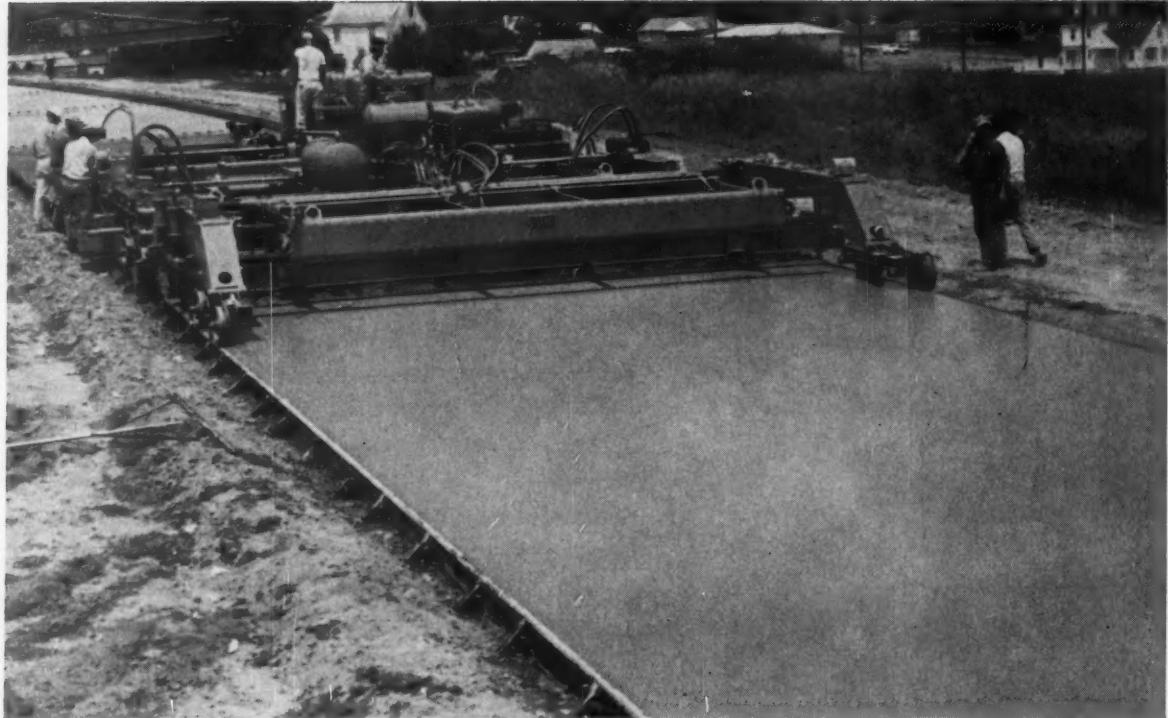
## *Easy shifting at all speeds*



With motor graders, ease of operation means a better job. Huber-Warco motor graders are designed to make the operator's job easier. This is one reason for Huber-Warco's significant improvement to the mechanical transmission — constant mesh, including range shift. This means the transmission assembly receives the torque output of a diesel engine and converts it to a wide range of power and speed combinations to suit any grading job. It permits easy and sure shifting at all speeds. By moving only one lever the operator can change direction in the same gear. There are six speeds forward, six reverse; what's more, optional creeper gears mean extra slow speeds. Ball and tapered roller bearings, constant pressure flood lubrication, helical gears, interlocked shift rails are but a few of the many other features you get with Huber-Warco constant mesh transmission. For real operator satisfaction, peak performance and efficiency, for every grading job, why not talk to your Huber-Warco distributor soon?

HUBER-WARCO COMPANY • MARION, OHIO, U.S.A.





**FINAL FINISHED SURFACE IS AN ENGINEER'S DREAM:**

Towed by a Jaeger tandem screed finisher and controlled by the same operator, the Jaeger finisher-float gives the final 4-to-1 correction of any surface

inaccuracies. It rides on bogie axles. Its oscillating screed and float pan are both suspended, independent of form levels alongside. (You can also use this float-finisher behind any make of finishing machine. Detaches in 2 minutes).

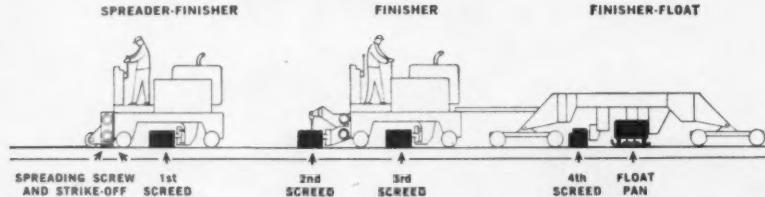
## HOW 2 MEN LAY SUPER-SMOOTH PAVEMENT WITH JAEGER 4-SCREED TEAM

**One spreads and finishes, the other finishes and floats. For 2-course work, simply add a base spreader.**

By using Jaeger's *integrated* paving train, low-bid contractors are saving labor all along the line—and delighting highway inspectors with the

pass. On 2-course pavement, if you are using only one paver, the same machine also spreads, but does not screed, the base for reinforcing mesh.

For fast, 2-paver production of 2-course slab, you need only add another spreader, without a finishing screed, to lay the base.



smoothness of their finished slab. On single-course work, here diagrammed, one spreader operator does the spreading, strike off and first finishing pass with oscillating screed—all in the one

Only one more machine operator is needed behind. He controls both the Jaeger tandem screed finisher and the Jaeger finisher-float. This last machine can be towed by, and operated from,

any finisher. It imparts the final kiss-finish with its narrow oscillating screed and 30" wide float pan.

**MACHINE-PERFECT, READY FOR BURLAP**

Both the screed and pan of the finisher-float are suspended, independent of adjacent form level and its bogie axles provide a 4-to-1 ratio of correction. The accuracy of finish being obtained with this equipment is typically described by a leading highway engineer as "the smoothest pavement I have ever seen."

**COMPLETE DATA ON REQUEST**

Hydraulic control, quick-crown-change and width adjustability (hydraulic self-widening where desired), diagonally adjustable finishing screed and many other valuable Jaeger features are described in latest catalog. Ask your Jaeger distributor—or write us.

**THE JAEGER MACHINE CO., 800 Dublin Avenue, Columbus 16, Ohio**

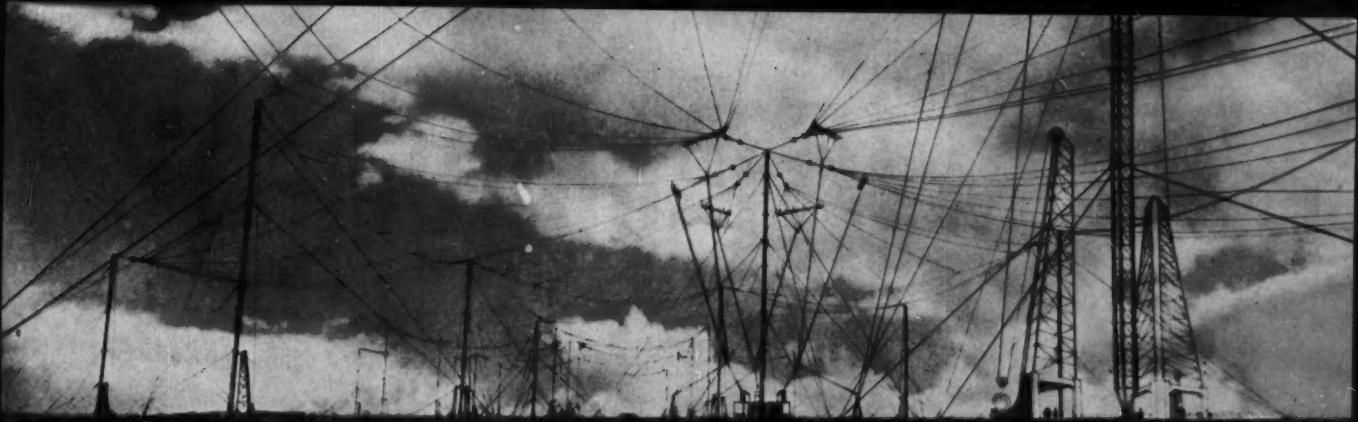
**JAEGER MACHINE CO. of CANADA, LTD., ST. THOMAS, ONTARIO**

Circle 135 on Reader Service Card

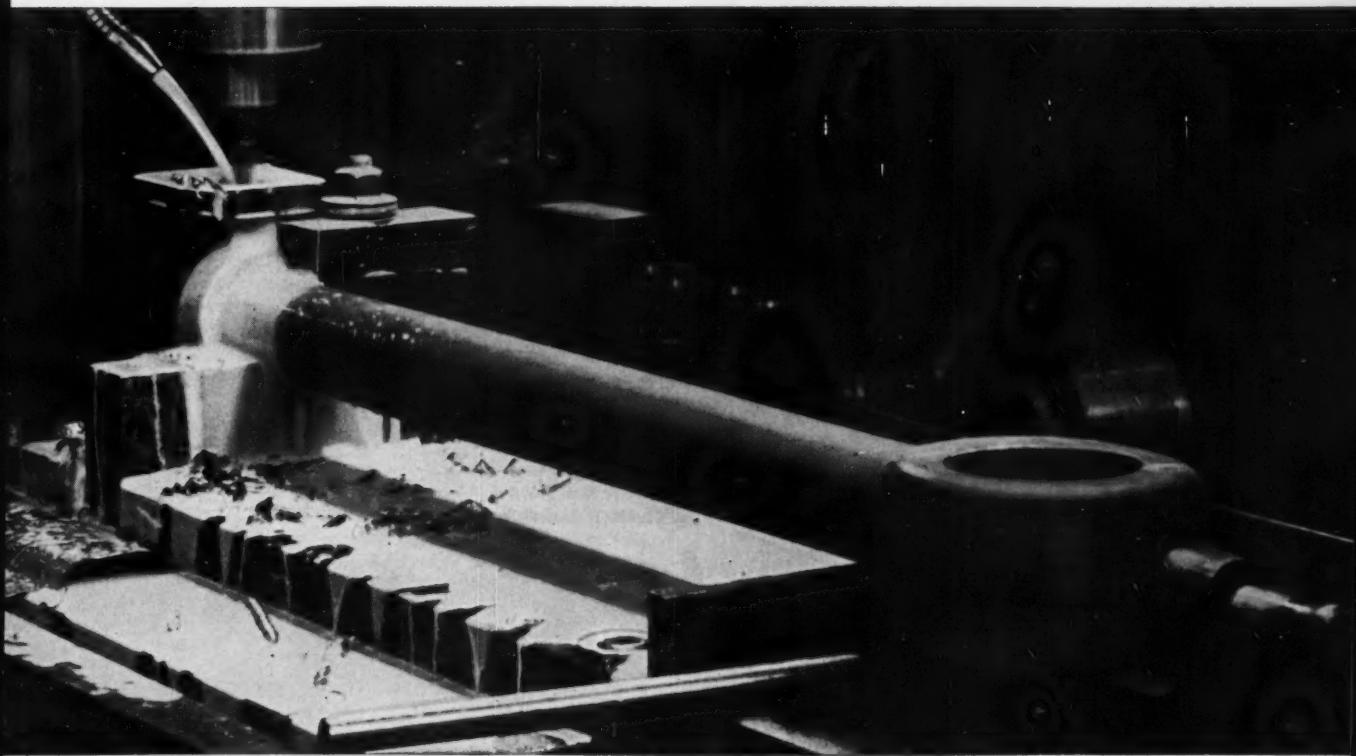
136

Circle 136 on Reader Service Card

**CONSTRUCTION METHODS**



## **World's largest radio antenna contains 800 special Bethlehem eye-bolts**



Husky eye-bolts, 800 of them weighing 75 lb each, are insulator-chain links guying the antenna of the most powerful radio station ever built. This specially engineered eye-bolt is typical of the special fasteners which Bethlehem manufactures in a wide variety.

This gigantic broadcasting station, located near Machias Bay on Maine's rock-bound coast, permits the U.S. Navy to reach submerged sub-

marines half-way 'round the world.

Whether you need a tiny bolt with a special head . . . or a large-size "special" made to precise specifications, the chances are good that we can make it at an attractive price.

Just send a drawing or sketch of what you need, with a description of its application. Write or call the nearest Bethlehem sales office. Or get in touch with us at Bethlehem, Pa.



for Strength  
... Economy  
... Versatility

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.  
Export Sales: Bethlehem Steel Export Corporation

**BETHLEHEM STEEL**



# Take 15 minutes on a

***Prove New International TD-15 cost-cutting capacity tops the 100 hp class***

**Advantages in heavy-duty hp** and in working speeds give the new TD-15 extra work capacity to cut costs, boost earnings — as compared to competitive rigs. *You can prove it, positively.* Advances in strength, wear-resistance, temperature control, and operating ease mean big gains in component life,

upkeep economy and machine availability to owners of new International TD-15's. *You can prove it, beyond doubt, without risk.* Let your International Construction Equipment Distributor give you the revealing 15-minute new "15" demonstration, now!

## **Prove new TD-15 capacity dozing heavy materials**

**Fast, easy new TD-15 shifting** saves effort, increases output. Size up the new "15's six-speed, full-reverse transmission with speeds spaced to use extra power and often work a speed faster than competitive rigs. See how the six speeds forward, six reverse, are arranged for easy short-travel, single-stick shifting. Change forward-reverse direction fast with the "Shuttle-Bar." Check the power-transfer efficiency and operating ease of the new "15's heat-defying, dry-type sintered metal engine clutch!

**Give the new "15" a steady job of bulldozing solid materials!** Advances like tapered, anti-friction bearings of greatly increased capacity — heavier shafts and deeper, stronger gear teeth — add thousands of hours to transmission component life. New transmission oil pump circulates and filters lubricant for longer gear life. Measure the added economy of features like the new sintered metal steering clutch discs which outlast previous type even while handling greater torque loads! ▶



**International®  
Construction  
Equipment**

International Harvester Co.,  
180 North Michigan Ave., Chicago 1, Ill.  
A COMPLETE POWER PACKAGE



# New "15" (151 SERIES)



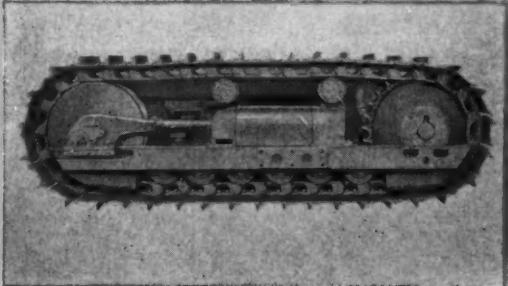
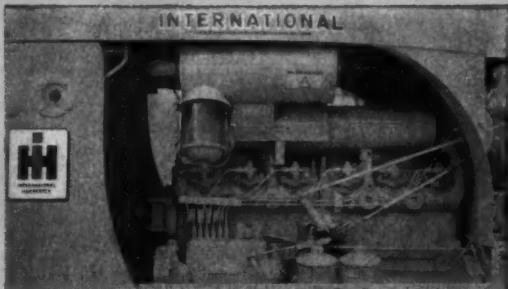
## Compare hp and performance protection!

Start the new TD-15's 6-cylinder engine push-button easy — and get the seconds-fast warm-up which only International's famous gasoline-conversion starting provides. Note that full load for the new "15" is an overload for other rigs of the 100-hp class. See how the new pressure-type cooling teams with the larger capacity radiator — to give positive temperature control in hottest weather at full capacity 'round the clock.

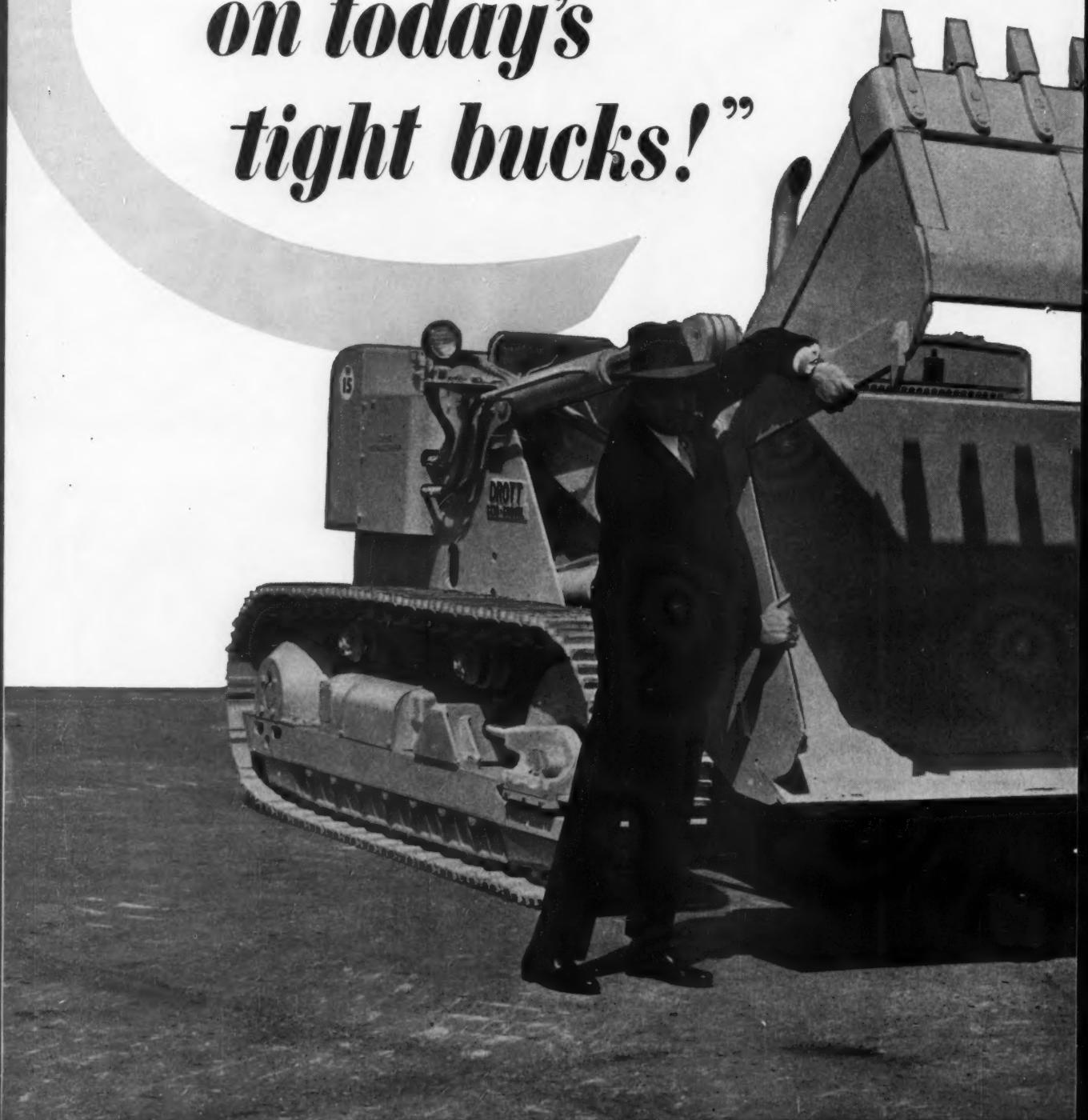
Look at the "15's" new dry-type air cleaner. It's 99.8% efficient — and 100% convenient! Handy, underhood mounting and transparent, quick-dump collector greatly simplify servicing. International even provides a dash indicator that shows red when element needs servicing!

## Prove new "15's" undercarriage strength!

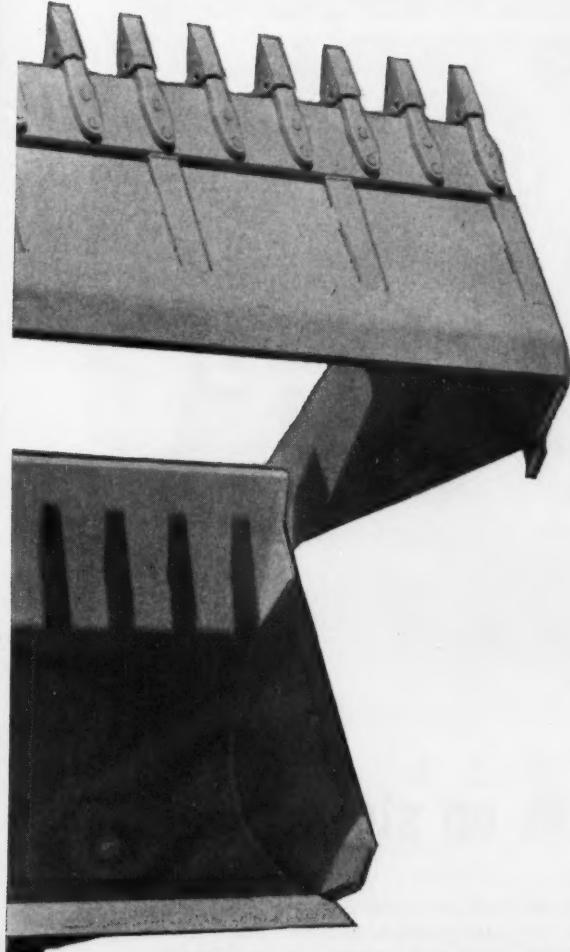
To go along with precision-welded double-box-beam TD-15 track frames is the added strength of drum-type front idlers — the added protection of frame-welded track chain guides — the added service life of self-cleaning, power-saving strutless track links. The new "15" is the only crawler of its power class with the shock-load prevention of ball-joint suspension — basic in International's famous 3-point track mounting design! Improved, high-efficiency full-floating seals protect the long life Dura-Rollers — the track rollers you grease only once per hundred 10-hr. shifts!



*"Mister...it  
clam-action to 'put the  
on today's  
tight bucks!"*



# *takes bite'*



"Doze, grade, grab, spread, do cut-and-fill work, strip, load sticky materials, outshovel a power shovel, pick up loose materials (without chasing them), grub, load 'impossibles'. Do dozens of other profitable jobs with the new '15' Four-in-One that single-action loaders can't touch!"

**"15 minutes on this new '15' Four-in-One will prove you can't afford to own any limited-duty bucket!"**

"Sure, a racehorse loader with a 'lock-jawed' bucket may gain you a few minutes a day—just dipping from a stockpile and dumping in a truck!

"But anywhere else we double-challenge you to stack any limited-duty loader against a new '15' clam-action 4-in-1, and see what happens. We can tell you right now what'll happen no matter what size, shape or color the single-action rig is, or how shifty it is! It'll get clobbered! And, profitwise, so will the guy who buys the obsolete bucket without bothering to find out what a slew of jobs the new '15' Four-in-One does.

"You can get the straight dope, first hand in 15 minutes, on this new TD-15 Four-in-One. In just one quarter-hour, you can prove what it means to own the one and only machine that doubles for a whole spread of contracting equipment—at the touch of a hydraulic lever.

"In only 15 minutes, you can put the 'bucket with the bite' through its paces. Prove how you get four, or a dozen, or more, full-sized, full-capacity machine actions with the exclusive 4-in-1. Prove you get hundreds of job-handling working positions with each action.

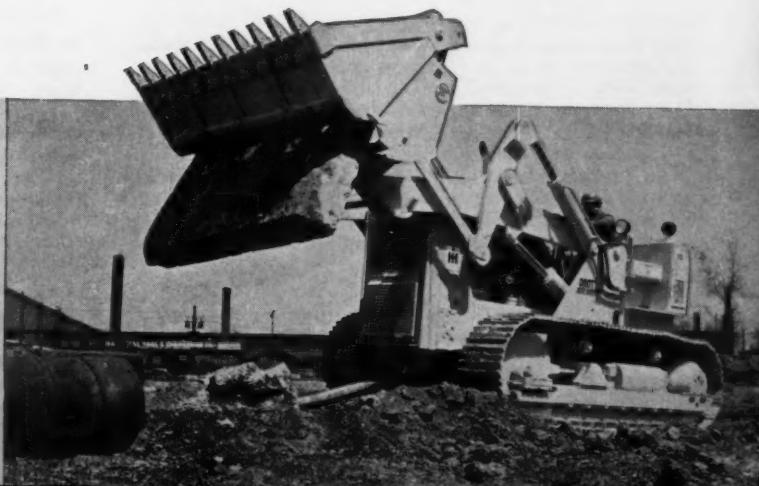
"See how new TD-15 Four-in-One get-up-and-go is tailored to set a fast work pace, with the single-stick shift, full-reverse transmission, and plenty of hydraulic control power.

"C'mon in now—take 15 minutes on a new '15' Four-in-One. Or call us for a demonstration on your job. See for yourself why you can't afford to own any obsolete 'lock-jawed' loader."

International Harvester Company, Chicago 1, Illinois  
Drott Manufacturing Corp., Milwaukee 15, Wisconsin



**INTERNATIONAL®  
DROTT**





US CONVEYOR BELTING

**TAKE IT WET...**



**OR DRY**

## New U.S. SlurryKing takes loads up steeper grades

Now you can carry slurries, wet cement, paper pulp slush, and other wet or dry materials up steeper inclines than possible with conventional smooth-surfaced belts. The new U.S. SlurryKing was designed especially to prevent avalanching of solids, even carries the fluid portion of wet mixes along with the solids.

An exclusive heavy-duty cover design withstands the severely abrasive effects of both wet and dry materials to retain the belt's hill-climbing ability indefinitely.

What's more, the U.S. SlurryKing enables you to drain

or retain the fluid portion of slurries depending upon the angle at which the conveyor and idler rollers are set. You enjoy a new kind of belt performance and flexibility.

You'll find the SlurryKing the answer wherever you need to move raw materials up steeper inclines with greater safety and control.

For information about the SlurryKing, see your "U.S." Distributor. He's your best on-the-spot source of quality products, quick delivery, and technical service.

WORLD'S LARGEST MANUFACTURER  
OF INDUSTRIAL RUBBER PRODUCTS



**United States Rubber**  
MECHANICAL GOODS DIVISION

Rockefeller Center, New York 20, N.Y.

Circle 142 on Reader Service Card

Better products, *faster*, from your National Seal distributor:

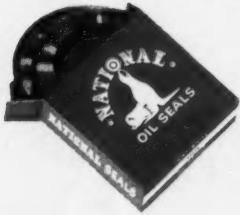


## When the dust flies, rely on National

National Oil Seals protect you from costly equipment failures when the going gets rough. Dust, mud, and dirt are bearings' worst enemies. Bearing failure means equipment failure, which amounts to lost time and money. National Oil Seals—the best money can buy—give you the protection you need to keep rolling right up to the wire no matter how

tough the job, how tight the schedule.

National Micro-Torc® leather and Syntech rubber come in standard and made-to-order sizes. They seal out bearing trouble and seal in lubrication to keep equipment working and earning. So it's good common sense to call your National Seal Distributor for all replacements.



### NATIONAL OIL SEALS

FEDERAL-MOGUL SERVICE

DIVISION OF FEDERAL-MOGUL-BOWER BEARINGS, INC. • DETROIT 13, MICHIGAN



Circle 143 on Reader Service Card

# Does Your Shop Have the Specialized Tools It Needs?

**CM&E's 13TH ANNUAL** Equipment Maintenance Guide tells how your contemporaries use the basic tools that are—or should be—found in any well-run shop.

Previous Equipment Maintenance Guide issues described how contractors lay out permanent maintenance shops, how they handle lubrication in the field, and how they care for specific types of construction equipment.

Other issues dealt in detail with the care of equipment components—tires and tracks, engines, batteries, and hydraulic, electrical, and cooling systems. For the most part, the tools covered in previous sections of this year's maintenance report are general-purpose machines capable of performing almost across-the-board maintenance functions.

But each year also sees important developments in specialized tools for testing, servicing, or repairing component systems of today's modern equipment fleets. This section covers these new developments.

**TIRES**—More and more contractors are subbing earthmoving tire maintenance and repair to dealers trained by the major rubber companies.

The trend makes sense. These dealers know their products and the type and amount of maintenance they require. In recent years they have learned that contractor maintenance is a specialized field, and have adopted their methods to suit it. Most important, they have made con-

tract maintenance practical from the cost standpoint.

But many contractors continue to take care of smaller truck tires. Many shops are equipped with bead breakers, rim pullers, and various types of repair kits. And most contractor field service trucks are equipped with a compressor that powers air jacks and impacts wrenches and supplies air for inflation.

The shop-built bead breaker pictured to the right is worth special mention. The unit has an electric motor-driven pump powered by a Blackhawk ram mounted at the top of a gable-shaped steel frame. The ram presses against an X-shaped I-beam attachment that transfers load to the bead-breaking head. A stand at the center of the frames holds the wheel.

**ELECTRICAL SYSTEMS**—Contractors service electrical systems, but the majority leave the complex repair job on armatures, coils, or generators to the professionals.

The jobs most likely to be handled in the contractor's shop are charging batteries, cleaning and replacing spark plugs, and checking and replacing components such as generators, coils, distributors, and lights.

Most contractors depend on the small chargers, similar to those found in gas stations, to service batteries. These are made by a number of companies, including Willard, Allen, Delco, Fox, and Triple A Specialty.

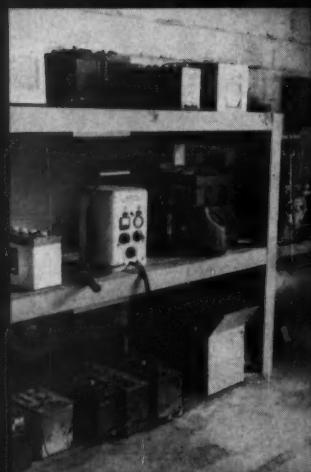
Many contractors also have



BRAKE RELINING requires special tools, such as this rivet machine.



TIRE CHANGING is speeded by shop-built device used as a bead breaker.



BATTERY maintenance equipment such as charger, distilled water and acid should be kept together in the shop.

rigged up chargers from parts from old machinery. The Concrete Corp. of Indiana has a stationary Fox Powercharger in their shop, but for field applications they have assembled a charger on a two-wheel buggy. The unit consists of old components from a number of machines.

Among the new tools on the market for servicing electrical systems are:

- General Electric's Tungar battery charger, a compact unit that can service up to 12 batteries at one time.

- The Delco Start-O-Pak, a compact kit that goes into the field to start machines with dead batteries.

- A new line of Fox battery chargers that provides protection against damage to alternators. They protect batteries against reverse connections or charging peaks.

**HYDRAULIC SYSTEMS**—Manufacturers of components for hydraulic systems are making the maintenance man's job much easier. Pumps and cylinders are much more reliable than they were a few years ago; hose lines are stronger and much easier to replace; and better test equipment quickly indicates when systems fail to approach their rated capacities.

Several manufacturers produce quick-coupling fittings that can be attached in a hurry by one man with hand tools. These fittings are economical because they are reusable and because a contractor can buy hose in quantity on reels and cut it to size as he needs it.

A few contractors process hydraulic hose with threading and stripping machines. Bucks County Construction Co. of Pennel, Pa., has an Oster machine to prepare hose for fittings.

Most contractors with well-equipped engine shops often do their own pump and cylinder repair work. The same tools used on engine overhauls can handle hydraulic system repairs.

Whether or not they do pump and cylinder work, most contractors do their own testing. Once, a whole series of flow rate

and pressure gages were needed, but recently contractors have turned to multi-gage testers such as the portable unit manufactured by Schroeder Brothers Corp. This one instrument tests an entire system.

Another popular hydraulic system tester is the unit made by Aeroquip Corp. that transmits data to the screen of a cathode-ray oscilloscope.

**ENGINE TESTING**—The variety of engine testing equipment now found in contractors' shops ranges from simple pressure gages to dynamometers.

Many contractors have shop-built stands to hold new or rebuilt engines while they are run in before they go back to work in the field. Williams Construction Co. of Baltimore keeps a rebuilt engine ready for immediate shipment to the field on its shop-built stand. Gages mounted on the stand record temperature, amperage, and fuel and oil pressure. The stand also has a radiator built into it.

Perini Corp. has an elaborate engine testing shop in a separate room adjacent to their engine overhaul shop. A Clayton dynamometer (see photo) in this room measures engine horsepower at various speeds. The adjustable stand that holds an engine to be tested is mounted on rails cast into a specially constructed concrete lab.

Here are other engine testing tools common to many contractors' shops:

- A new magnetic inspection instrument manufactured by Sonoflex detects invisible, microscopic cracks in engine heads or blocks. An electromagnetic lead passed over iron filings dusted over a casting clearly marks cracks.

- The Sun Motor Tester is a portable stand that checks engines while they are still installed in equipment. It is used for both trouble-shooting and engine tuning.

- The Simplex oil testing kit quickly detects damaging contaminants in used oils. It picks out abrasive solids, corrosive acids, fuel dilution, water, or anti-freeze in oil.



TESTING rigs found in shops range from a pressure gage to a dynamometer.

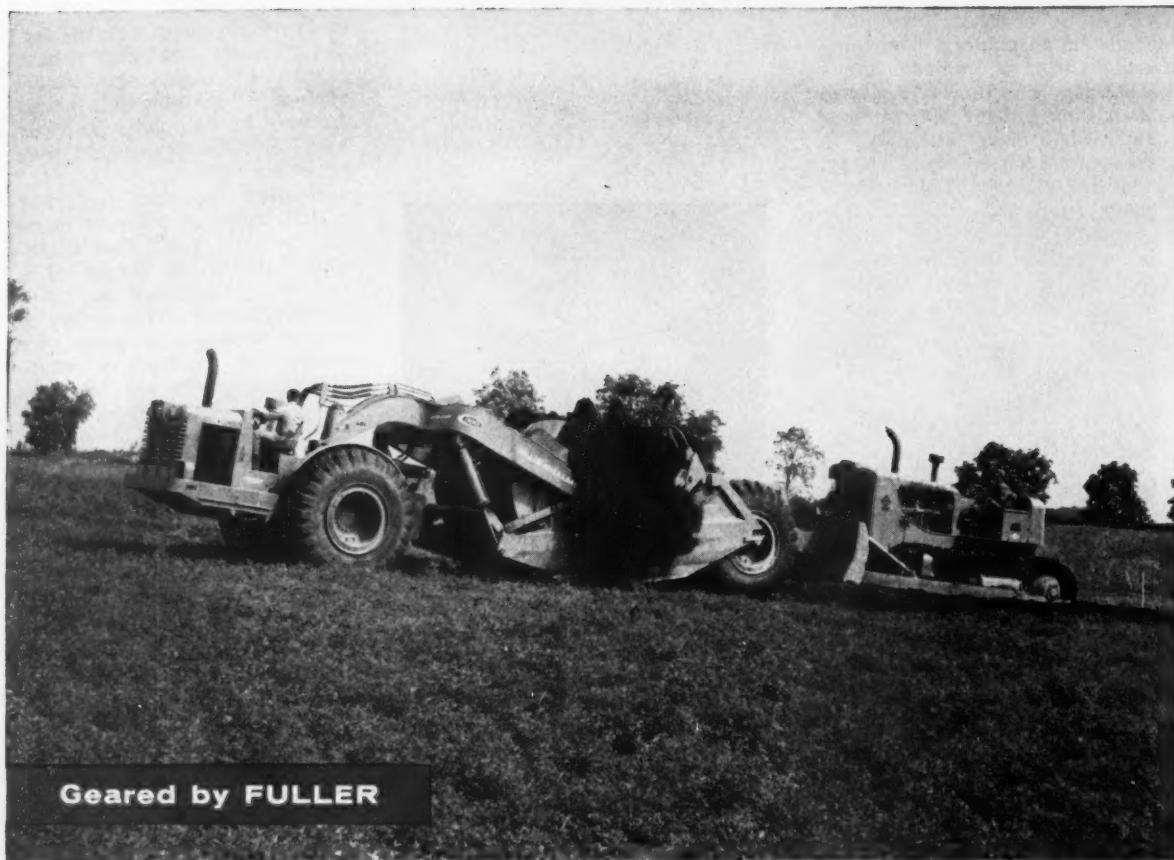


HYDRAULIC lines now are easier to service, thanks to simple fittings.



SMALL TOOLS are used more than any other in the shop. Keep them together in an easy-to-reach location.

**File CM&E's exclusive comparative specification charts... see p. 147.**



**Geared by FULLER**

The Hammersley Construction Company of Madison, Wisconsin is fulfilling its contract to move 2,500,000 yards of dirt in the construction of three Badger State highway interchanges with scrapers equipped entirely with Fuller Transmissions.

## 2½ Million Yards of Earth Moved by Fuller-Geared Scrapers

Hammersley Construction Company is heap-loading on fast work cycles with one Allis-Chalmers TS 360 geared by a Fuller 5-speed 5-G-1520 Transmission, eight LeTourneau-Westinghouse Model B Tournapulls—all geared by Fuller L-1550 10-Speed Transmissions—and seven Model C Tournapulls equipped with Fuller L-1220 Transmissions.

"We've used Fuller Transmissions in our scrapers for some time," states Fay Hammersley, Jr., owner of the company, "and we've had good results with them. On any new equipment, *I'll specify Fuller.*"

Models 5-G-1520, L-1220, and L-1550 Transmissions are equipped with air-powered Countershaft Inertia Brakes for quick up-shifts, and

with Fuller Pressure Lubrication and Filtration Systems to provide positive lubrication, maintain clean oil, and greatly prolong gear and bearing life.

For easier, quicker shifts with engines operating in the peak horsepower range, lower fuel consumption, and GREATER PROFITS in your earth-moving operations . . . specify Fuller Transmissions.

**FULLER TRANSMISSION DIVISION**  
**EATON MANUFACTURING COMPANY**   
KALAMAZOO, MICHIGAN

Sales & Service: West. Dist. Branch, Oakland 6, Cal. • Southwest Dist. Office, Tulsa 3, Okla. • Automotive Products Co., Ltd., Brock House, Langham St., London W.1, England, European Rep.

Circle 146 on Reader Service Card

# *Construction Methods*

AND  
EQUIPMENT

JULY, 1961

## SPECS FOR YOUR FILES



CRAWLER TRACTORS ..... 148



TRACTOR SHOVELS ..... 150



MOTOR GRADERS ..... 154



PNEUMATIC-TIRED ROLLERS ..... 156



STEEL ROLLERS ..... 158



TRACTOR-DRAWN SCRAPERS ..... 161



SELF-PROPELLED SCRAPERS ..... 162



PORTRABLE COMPRESSORS ..... 164

## EQUIPMENT MAINTENANCE GUIDE

**SPECS FOR YOUR FILES** is a copyrighted feature of *Construction Methods and Equipment*. Reprints of this series of exclusive comparative specification charts are available on request. Price of the complete 20-page section is 75 cents. Copies of individual charts are 10 cents. Prices for bulk orders are available on request. Send your order to The Editor, *Construction Methods & Equipment*, 330 W. 42nd St., New York 36, N. Y.

© Copyright 1961  
by McGraw-Hill Publishing Co., Inc.  
330 W. 42 Street, New York 36, N. Y.  
All rights reserved. Printed in U.S.A.

# CRAWLER TRACTORS



MAKE AND MODEL

MAKE AND MODEL	GENERAL DATA								STANDARD TRACKS			MAX. DRAWBAR PULL, LBS (NORMAL GOVERNED ENGINE RPM)													
	Length, In.	Height, In.	Width, In.	Gage, In.	Weight, Basw, Lbs.	Ground Clearance, In.	Type Steering	Turning Radius, ft.	Drawbar HP Rating	Belt HP Rating	Net Engine HP Rating	No. of Shoes, Each Side	Length, In.	Width, In.	Ground Contact, Sq. In.	Lbs	Zind	Zinf	4ft	5ft	6ft				
1 ALLIS-CHALMERS HD-E	127	69	78	69	12,050	11 1/4	Mech.	90	52	63	66.5	37	76 5/8	13	1,992	12,640	7,930	5,550	4,450	2,975	-				
2 HD-11E	154	84	96	74	21,900	13 5/16	Hyd.	106	77	94	99	41	96 1/4	16	3,080	20,470	13,410	9,070	6,800	5,540	3,900				
3 HD-16A	181	90	96	78	31,500	14 3/8	Hyd.	112	125	141	148	38	96 5/16	20	3,853	33,100	21,735	15,105	11,270	9,465	6,930				
4 HD-16DC	181	90	96	78	32,000	14 3/8	Hyd.	112	-	-	150	41	108	20	4,324	60,000	47,000	26,000	(Torque Converter)						
5 HD-21	197	99	109	84	45,500	16 1/8	Hyd.	128	-	-	225	40	120 1/8	24	5,766	70,000	69,750	(Torque Converter)							
6 J.I. CASE 470	108	56	82	48	5,076	16	Differential	84	29	35	38	31	57	14	1,596	5,815	11,943	2,203	-	-	-				
7 660	105	62 1/2	63	49	6,900	15 1/2		98	-	-	54	34	62 5/8	14	1,753.5	15,060	9,000	7,750	4,450	(Torque Converter)					
8 660D	105	62 1/2	63	49	7,200	15 1/2		98	-	-	54	34	62 5/8	14	1,753.5	15,060	9,000	7,750	4,450	(Torque Converter)					
9 750	114	66	68	54	10,500	9 1/4		60	-	-	63	36	72 7/8	18	2,040	23,000	13,000	10,000	6,000	(Torque Converter)					
10 800D	114	71 1/2	69	54	11,550	11 1/16		110	-	-	68	37	73	15	2,190	20,700	11,750	10,000	5,500	(Torque Converter)					
11 1000	115	72 5/8	76	60	13,450	10 15/16		114	-	-	87	39	79	16	2,528	25,400	14,400	12,290	6,770	(Torque Converter)					
12 CATERPILLAR D4	128 15/16	69 1/8	62 1/8	44	11,000	14			-	52	59	65	35	72 3/4	13	1,092	13,000	9,270	6,540	4,820	3,520				
13 D6	151 3/4	77 1/4	75 1/2	69	17,445	13 1/2			-	75	-	93	40	86 7/8	16	2,780	19,495	12,550	8,735	6,095	4,240				
14 D7	167 3/8	81 1/4	97	74	26,735	15 1/2			-	112	-	140	37	94 3/8	20	3,775	33,250	22,070	14,700	9,620	6,910				
15 D8D	204	94	109 1/2	84	46,220	19 7/8			-	185	-	235	39	114 11/16	22	5,056	53,150	40,150	28,150	20,850	15,400	10,200			
16 D8TC	204	94	109 1/2	84	46,082	19 7/8			-	-	235	39	114 11/16	22	5,050	(Torque Converter)				(Torque Converter)					
17 D9PS	204	94	109 1/2	84	46,462	19 7/8			-	-	235	39	114 11/16	22	5,050	(Torque Converter)				(Torque Converter)					
18 D9PS	216	116	119	90	64,400	22 1/2			-	-	385	39	132 3/8	24	6,354	(Torque Converter)				(Torque Converter)					
19 JOHN DEERE 430 (C44-Builder)	102	69	56	36-38	4,475	12	Clutch	72	24.1	28.7	32	31	56	10	1,120	4,862	3,964	2,924	1,424	-	-	-			
20 440IC	106	66	61	48	5,850	13	Clutch	78	24.23	31.81	37.25	36	69	10	1,385	6,548	5,689	3,196	2,366	1,595	-	-			
21 440ICD	106	66	61	48	6,150	13	Clutch	78	25.93	32.48	37.25	36	69	10	1,385	7,060	5,060	3,341	2,373	1,548	-	-			
22 1010C	98 1/2	73	61	48	6,315	13 1/2	Clutch	78	27	35	40	32	69	10	1,385	6,500	-	-	-	-	-	-			
23 EIMCO 630	72	45	55	45	6,500	6	Twin Air Motors Unidrive	45	-	(d)	25	-	28	43 7/8	9	790	(Torque Motors 10,600 Lbs. Max. Zero Track Slippage)				(Torque Converter)				
24 103	130	90	76 9/16	74	19,000	17		78	-	-	122	37	88	16	2,020	36,000	23,650	15,400	9,950	(Torque Converter)					
25 105	150	95	94	74	29,500	11		84	-	-	143	40	95	20	3,000	55,000	20,000	(Torque Converter)				(Torque Converter)			
26 106	150	95	96	74	34,200	11		85	-	-	218	40	95	22	4,100	64,000	24,000	(Torque Converter)				(Torque Converter)			
27 EUCLID TCD2	195	103	137	110	60,000	28	Power To Each Track Hyd. Boost Clutch	115	-	-	425	43	131	27	7,074	(Torque Converter)				(Torque Converter)					
28 C6	185	97	100	78	42,000	17.5		120	-	-	211	43	115.2	22	5,069	(Torque Converter)				(Torque Converter)					
29 INTERNATIONAL TB-340	106	55	48	36	5,400	10 1/2	Planetary	65	33.8	41.8	44	36	67.2	10	1,342	6,801	5,735	4,116	2,839	1,811					
30 T-340	106	55	48	46	5,755	12		65	31.0	36.5	47	36	67.2	10	1,320	6,458	5,374	3,862	2,587	1,768					
31 T-6	109	69	93	40	7,900			65	41.5	51.5		32	585/8	12	1,407	(Torque Converter)				(Torque Converter)					
32 TD-6	109	69	93	40	7,945	8 3/4		65	42.3	-	52	32	585/8	12	1,407	6,770	6,635	4,465	3,580	2,400					
33 TD-9	117	74	59	44	10,915	103/8		72	55.7	-	66	33	63	13	1,649	10,500	7,300	5,100	3,800	2,500					
34 TD-15	151	82	90	62	22,150	22,500		104	95	-	105	39	89	16	2,058	21,000	16,300	11,000	8,800	6,600	4,400				
35 TD-26	167	86	94	74	29,690	14		109	113	-	140	40	94	26	3,777	28,100	21,200	17,200	12,300	8,300	4,400	(k)			
36 TD-25	197	97	104	80	45,850	13 7/8		124	185	-	230	47	117 3/4	24	5,052	46,700	36,500	30,300	23,000	16,500	12,500				
37 TD-25-TC	197	97	104	80	45,850	13 7/8		124	-	-	230	42	117 3/4	24	5,052	(Torque Converter)				(Torque Converter)					
38 MINNEAPOLIS-MOLINE M-10AC	117	75	68	54	9,200	12 1/2	Clutch	74 1/2	-	-	-	37	74 1/2	14	2,006	(Torque Converter)				(Torque Converter)					
39 OLIVER 6CA-30-46	107	55	56	46	(a)	181 1/2	Cont. Diff. or Clutch	68	24.06	26.47	30.20	32	561/8	10	1,122	4,366	3,620	2,279	1,261	-	-				
40 6CA-30-46	107	55	56	46	(b)	18 1/2	Cont. Diff. or Clutch	68	24.75	27.31	30.45	32	561/8	10	1,122	5,124	3,361	2,614	1,489	-	-				
41 OC-80	110	62	68	54	9,325	13	Hyd. Clutch	67	-	54.7	57	33	71 7/16	12	1,714	16,900	14,691	9,487	5,935	(Torque Converter)					
42 OC-120	110	66	76	60	10,925	14 1/8	Planetary Gear Box	90	53.05	59	63	33	71 1/2	14	2,007	11,333	8,310	5,700	3,391	-	-				
43 OC-15	128	71	95	74	17,335	14 1/4	Planetary Gear Box	119	94.17	104	110	35	871/8	16	2,788	17,218	13,133	8,754	5,417	-	-				

(a) Includes trans., steering cl., brakes

(b) Five-roller model; 35 acres; turning radius, 78 in.; weight, 5,100 lb.; track length, 66 in.; ground contact, 1,328 sq. in.

(c) Manufacturer's rating

(d) Also available with electric motors

(e) Available with 2-cycle, 107-hp GMC 443 Diesel

(f) Available with 4-cycle, 130-hp Cummins WH48 Diesel

(g) Available with 4-cycle, 80-hp Case G 388 D Diesel

(h) Available with Deere Diesel

(i) Twin power units, liquid capacities for each engine

(j) Available as attachment in place of 3rd speed forward

(k) 70 gear: 6 mph; 10,000 DBPP; 80 gear: 7.7 mph, 7,300 DBPP

(l) Includes planet housing

(m) Shipping weight

(n) At track frame guide supports

(o) Includes torque converter for spot-turn model, add \$30

(p) 3rd gear: 3.1 mph; 4th gear: 4.0 mph; 5th gear: 5.07 mph

(q) Available with Moline 20GM-4 53-hp gasoline engine

# Construction Methods AND EQUIPMENT

## Specs for Your Files...

	MAX. TRAVEL SPEED, MPH								ENGINE				BELT PULLEY			LIQUID CAPACITIES									
	1st	2nd	3rd	4th	5th	6th	Reverse, Low	Reverse, High	Make	Model	Diesel or Gas	No. of Cylinders & Bore & Stroke	Cycles	HP at Governor Speed	Starting Method	Diameter, In.	Face, In.	HP, Name	Cooling System, Gal.	Fuel Tank, Gal.	Crankcase, Qts.	Transmission, Qts.	Final Drive, Qts. Each		
ALLIS-CHALMERS	1.5	2.4	3.3	4	5.5	2.0	2	-	ALLIS-CHALMERS	6000	D	4 7/16 x 5 9/16 (4) (6)	4	1,000	ELECTRIC	12	8 3/4	963	9	40	12	20	12	1	
	1.4	2.1	2.9	3.8	4.4	5.7	1.6	4.4		10000	D	4 7/16 x 5 9/16 (6)	4	1,000		13 3/8	10	1,045	11	60	17	27	13	2	
	1.4	2.1	3	3.9	4.5	5.8	1.5	4.5		16000	D	5 1/4 x 6 1/2 (6)	4	1,000		18	15	693	15	100	36	34	22	3	
	0.25	0.43	0.72	-	-	-	0.32	0.55		16000	D	5 1/4 x 6 1/2 (6)	4	1,000		18	15	403-755	17	100	36	32	22	4	
	0.3	0.43	-	-	-	-	0.60	-		21000	D	5 1/4 x 6 1/2 (6)	4	1,025		-	-	-	20	135	30	100	30	5	
	1.7	2.7	4.5	-	-	-	2	-		G-140 (g)	G	3 3/8 x 1 1/8 (4) (6)	4	1,050		8 1/2	6 1/2	1,140	3	17	5 1/2	8	2 1/2	6	
	0-1.67	0.322	0.340	0.456	-	-	0-1.83	0-7.20		F-209	G	3 3/8 x 4 3/8 (4)	4	2,250		10%	7%	1,020	4.75	25	7	24	4	7	
	0-1.67	0.322	0.340	0.456	-	-	0-1.83	0-7.20		ED-208	G	3 11/16 x 4 7/8 (4)	4	2,250		10%	7%	1,020	4.75	25	10	24	4	8	
	2.0	3.0	4.0	6.0	-	-	2.2	6.6		A-3010	D	4 1/2 x 5 1/2 (4)	4	2,000		-	-	-	9	36	12	32	8	3	
	0-1.6	0.29	0.33	0.6	-	-	0-1.9	0-7.2		HD-277	D	4 1/2 x 5 1/2 (4)	4	2,250		-	-	-	7 1/2	40	11 1/2	46	8	10	
	0-1.6	0.29	0.33	0.6	-	-	0-1.9	0-7.2		JD-382	D	4 1/2 x 6 (4)	4	2,000		-	-	-	8 1/2	45	11 1/2	46	8	11	
CATHERPILLAR	1.6	2.3	3.2	4.2	5.5	-	1.9	4.9	CATHERPILLAR	D-330	D	4 1/2 x 5 1/2 (4) (6)	4	1,000	GASOLINE ENGINE WITH ELECTRIC STARTER	-	-	-	-	10	42	16	27	7	12
	1.7	2.6	3.6	5	6.6	-	2	6.2		D-333	D	4 1/2 x 5 1/2 (4)	4	1,000		-	-	-	11	65	22	42	13	13	
	1.5	2.2	3.2	4.6	5.9	-	1.8	5.4		D-339	D	5 3/4 x 8 (6)	4	1,200		-	-	-	17	85	22	45	23	14	
	1.5	1.9	2.7	3.5	4.6	6.3	1.5	6.4		D-342	D	5 3/4 x 8 (6)	4	1,200		-	-	-	27	134	35	136(a)	36	15	
	L-0-3.5, Int.-0-5.2, H-0-7.6	-	-	-	0-3.5	0-7.5	-	-		D-342	D	5 3/4 x 8 (6)	4	1,200		-	-	-	27	134	35	136(a)	36	16	
	L-0-2.5, Int.-0-4.4, H-0-6.9	-	-	-	0-2.5	0-8.0	-	-		D-342	D	5 3/4 x 8 (6)	4	1,200		-	-	-	27	134	35	172	36	17	
	L-0-2.4, Int.-0-4.2, H-0-6.5	-	-	-	0-3.0	0-8.1	-	-		D-353	D	6 1/4 x 8 (4)	4	1,330		-	-	-	40	200	45	364(a)	45	18	
	1.14	2.23	2.98	3.87	7.34	-	1.65	-		Deere 430	G	4 1/4 x 6 (2) (2)	4	1,050	Elec.	9	6	1,270	2 1/2	10 1/2	5	8	7/8	19	
	1.00	1.55	2.04	3.72	5.15	-	1.73	-		Deere 440	G	4 1/4 x 6 (2) (2)	4	2,000	Elec.	9	6	1,370	2 1/2	10 1/2	5	9	7/8	20	
	0.98	1.58	2.01	3.78	5.26	-	1.76	-		GM 2-53	D	3 7/8 x 4 1/2 (4)	2	1,050	Elec.	9	6	1,270	2 1/2	10 1/2	9	9	7/8	21	
EINSCO	1.41	1.93	3.98	6.54	-	-	2.39	-	EINSCO	Deere 1010 (n)	G	3 1/2 x 3 (4)	4	1,500	Elec.	9	6	1,224	2 3/4	12	6	9	3/4	22	
	0-1.5	-	-	-	-	Rev. 1	Rev. 2	0-1.5		201 (d)	-	-	-	750	-	-	-	-	-	-	70	-	23		
	0-2.0	0-3.0	0-4.5	0-6.5	-	Rev. 2	0-3.0	0-4.5		JH-81 (e)	D	4 1/8 x 5 (4)	4	2,200	Elec.	-	-	-	11	45	12	96	68	26	
	0-2.3	0-5.5	-	-	-	-	-	0-2.3		GMC 4000 (f)	D	4 1/4 x 5 (4)	2	2,000	Elec.	-	-	-	9	60	13	128	76	25	
	0-2.5	0-6.0	-	-	-	-	-	0-2.5		GMC 671 (h)	D	4 1/4 x 5 (4)	2	2,100	Elec.	-	-	-	16	60	20	128	76	26	
INTERNATIONAL	L-0-2, Int.-0-4, H-0-7.8								INTERNATIONAL	GM 6-71 Twin Engines	D	4 1/4 x 5 (4) (6)	2	2,100	Elec.	-	-	-	38	225	32	288	36	27	
	L-0-2.1, Int.-0-4, H-0-7.9									GM 6-71	D	4 1/4 x 5 (4)	2	2,100	Elec.	-	-	-	19	118	20	140	36	28	
	1.5	2.3	3.1	4.4	6.0	-	1.9	-		D-356	D	3 11/16 x 3 7/8 (4)	4	2,000	ELECTRIC	-	-	-	46	14	7	46	2	29	
	1.5	2.3	3.1	4.4	6.0	-	1.9	-		C-135	G	3 1/4 x 4 1/16 (4)	4	2,000		-	-	-	3 3/4	15	5	46	2	30	
	1.6	2.3	3.3	4.0	5.7	-	1.8	-		C-263	G	3 9/16 x 4 3/8 (4)	4	1,500		-	-	-	11	33	9	16	1	31	
	1.6	2.3	3.3	4.0	5.7	-	1.8	3.7		D-282	D	3 11/16 x 4 3/8 (4)	4	1,500		-	-	-	11	33	9	16	1	32	
	1.9	2.7	3.8	4.8	6.6	-	2.2	-		DT-282	D	3 11/16 x 4 3/8 (4)	4	1,700		-	-	-	12 1/2	33	9	22	1 1/2	33	
	1.7	2.5	3.4	4.4	6.0	-	2.0	-		D-554	D	4 4/8 x 5 1/2 (4)	4	1,600		-	-	-	16	61	20	28	7 1/2	34	
	1.5	1.9	2.6	3.4	4.3	5.9	1.9	7.3		DT-611	D	4 3/4 x 6 1/2 (4)	4	1,500		-	-	-	19	75	26	42	10	35	
	1.6	2.1	2.5	3.4	4.7	7.3	1.9	8.9		DT-617	D	5 3/8 x 6 (4)	4	1,500		-	-	-	19	135	34	152 <sup>(1)</sup>	21	36	
	1.5	2.0	2.4	3.0	4.1	5.2	1.5	7.5		DT-617	D	5 3/8 x 6 (4)	4	1,500		-	-	-	24	135	34	152 <sup>(1)</sup>	21	37	
	0-2.8	0-3.6	0-4.5	0-4.2	-	-	0-2.9	0-7.1		DT-617	D	5 3/8 x 6 (4)	4	1,500		-	-	-	-	-	-	-	-	-	
HERCULES	1.3	2.0	2.5	3.2	7.3	-	1.6	(2) 2.5	HERCULES	Molina D 206 A-4 (f)	D	3 5/8 x 5 (4)	4	2,000	Elec.	-	-	-	3 1/2	34	6	104	36	38	
	1.56	2.37	3.36	5.27	-	-	1.81	-		Herc. G-130	G	3 1/2 x 4 1/2 (3)	4	1,700	ELECTRIC	8 1/2	6 1/2	1,038	3	11	5	8	3/4	39	
	1.56	2.37	3.36	5.27	-	-	1.81	-		Herc. DD-130	D	3 1/2 x 4 1/2 (4)	4	1,700		8 1/2	6 1/2	1,038	3	11	5	8	3/4	40	
	0-1.50	0-2.40	0-3.72	5.94	-	-	0-2.00	0-7.92		DD-190H	D	3 3/4 x 4 1/2 (6)	4	2,200		-	-	-	5 1/2	38	8	44	9	41	
	1.60	2.34	3.34	5.27	-	-	1.72	3.60		DJXC	D	3 3/4 x 4 1/2 (6)	4	1,750		12	8 1/2	1,034	5	35	12	32	8	42	
	1.67	2.64	3.36	5.60	-	-	1.99	4.48		DRXC	D	4 5/8 x 5 1/4 (6)	4	1,500		13	11	975	10 1/2	46	16	36	8	43	

Allis-Chalmers Mfg. Co., Construction Machinery Div., Milwaukee 1, Wis.  
 J.I. Case Co., 700 State St., Racine, Wis.  
 Caterpillar Tractor Co., Peoria, Ill.  
 Deere & Co., Moline, Ill.  
 Eimco Co., Salt Lake City, Utah  
 Euclid Div., General Motors Corp., Hudson, Ohio  
 International Harvester Co., 180 N. Michigan Ave., Chicago, Ill.  
 Minneapolis-Moline: Metac Industries, Inc., Hopkins, Minn.  
 Oliver Corp., 400 W. Madison St., Chicago, Ill.

# TRACTOR SHOVELS



MAKE AND MODEL

MAKE AND MODEL	Type (Wheel or Crawler)	BUCKET *										OVERALL DIMENSIONS (IN.) *										
		Bucket Capacity (cu ft)	Slice Capacity (cu ft)	Lifting Capacity (lb)	Carrying Capacity (lb)	Width (in.)	Maximum Digging Clearance (in.) (Bucket in Shovel Rest)	Neutral Clearance under Bridge Pin (in.)	Height	Width (in.)	Length (located in ground) (in.)	Length (Bucket in carrying position)	Width over Track Gauge on Ground	Width of Track Gauge	Track Gauge	Tread, Front	Tread, Rear	Tire Size, Front	Tire Size, Rear	Outside Turning Radius		
ALLIS-CHALMERS																						
1 HD-6G	C 11/2	11/4	-	-	80 1/2	109	133 1/2	74	80 1/2	181	-	83 3/16	13	60	-	-	-	-	-	-	-	
2 HD-11G	C 2 1/4	17/8	15,000	-	95 1/2	114	139	84	96	209	-	105 1/4	16	74	-	-	-	-	-	-	-	
3 HD-16G	C 3	25/8	29,100	-	111	122	147	99 1/2	111	232	-	116	20	84	-	-	-	-	-	-	-	
4 HD-21G	C 4	3 1/3	40,000	-	111	132	160	106	109	254	-	129 1/8	22	94	-	-	-	-	-	-	-	
5 TL-10	W 1 1/8	-	8,180	3,600	80 1/2	88	123	73 1/2	81	180 1/2	180 1/2	76	-	-	66%	66%	12.00-24	9.00-16	151			
6 TL-12	W 1 1/8	-	9,500	4,000	80 1/2	100	123	73 1/2	81	188 1/2	188 1/2	81	-	-	66%	66%	12.00-24	12.00-24	233			
7 TL-14	W 1 1/2	-	12,500	5,300	80 1/2	99	125	75 1/2	84 1/2	195 1/2	195 1/2	84	-	-	66%	66%	13.00-24	13.00-24	262%			
8 TL-16	W 2	-	17,000	7,000	90	108	138	81	90	211	209 1/4	90	-	-	70%	70%	14.00-24	14.00-24	251			
9 TL-200	W 2 3/4	-	21,000	9,000	95 1/2	108	142	87	92	224	220 3/4	98	-	-	74	74	16.00-24	16.00-24	290%			
10 TL-30	W 3 1/2	-	25,000	10,500	116	122	154	93	105	236	-	98	-	-	82	82	18.00-25	18.00-25	316			
J. I. CASE																						
11 420	C 3/4	1/2	3,500	-	62 5/8	106	118	56	62	137	140	57	14	48	-	-	-	-	-	84		
12 600	C 1	3/4	5,000	-	62 5/8	108	120	62 1/2	63	165	174	62 5/8	14	49	-	-	-	-	-	96		
13 750	C 13/8	1	5,300	-	76 1/4	99	123	66	68	175 1/2	-	72 7/8	14	54	-	-	-	-	-	60		
14 800	C 11/2	1	5,800	-	81	99	127	71 1/2	75	185	186	73	15	60	-	-	-	-	-	110		
15 1000	C 2	11/4	7,830	-	81	102	134	72 5/8	76	197	198	76	16	60	-	-	-	-	-	60		
16 W-5	W 1	3/4	4,500	3,000	69 1/2	96	120	70	68 1/2	174	177	60	-	-	55 5/8	55 5/8	13.00-24	7.50-16	125			
17 W-9	W 1 1/4	11,000	5,500	90	102	132	78	90	211	221	94 1/2	-	76%	76%	14.00-24	14.00-24	263					
18 W-10	W 2	13/8	13,000	6,500	96	102	133	87	94 1/2	222	234	94 1/2	-	76%	76%	16.00-24	16.00-24	273				
19 W-12	W 2 1/2	2	15,000	9,000	102	108	140	91	96	233	241	99	-	-	77%	77%	16.00-24	16.00-24	287			
CATERPILLAR																						
20 903	C 11/8	-	-	-	70	93 3/8	119 1/16	75 3/8	70	168 7/16	-	74 1/2	12	54	-	-	-	-	-	-		
21 955	C 13/4	-	-	-	80	99 3/4	130 1/4	84 5/8	80	188 3/4	-	85 1/4	15	60	-	-	-	-	-	-		
22 977	C 2 1/2	-	-	-	96	112	144	90 1/4	96	207 7/8	-	106 1/8	18	74	-	-	-	-	-	-		
23 922	W 1 1/4	-	-	-	93 1/2	103	134	99 1/4	93 1/2	197	-	78	-	-	68	68	12.00-24	12.00-24	228			
24 944	W 2	-	-	-	93 1/2	109 7/8	143 3/4	107	93 1/2	216	-	88	-	-	74	74	14.00-24	14.00-24	243%			
25 956	W 2 3/4	-	-	-	104 1/2	116 1/4	154 1/4	106	104 1/2	242 3/8	-	94	-	-	79	79	16.00-24	16.00-24	263			
MICHIGAN																						
26 (Clark Equip't Co.) 12B	W 16 cu ft	15 cu ft	2,900	2,220	50	57	79	61	58	122	122	51	-	-	39	35	7.50-17	6.00-9	78			
27 55A	W 1	3/4	6,000	4,600	79	96	114	78	80	186	195	75	-	-	66	67	13.00-24	13.00-24	268			
28 55B	W 1	3/4	5,400	4,100	79	96	114	78	80	186	193	75	-	-	65	58	13.00-24	9.00-16	122			
29 75A	W 1 1/4	1	7,000	5,300	79	96	115	79	82 1/2	196	206	75	-	-	65%	67%	14.00-24	14.00-24	212			
30 85A	W 13/4	11/2	9,000	6,300	85	92	115	79	82 1/2	201	210	75	-	-	65%	67%	14.00-24	14.00-24	212			
31 125A	W 2 1/4	2	13,000	10,000	96	99	127	86	92 1/2	225	239	88	-	-	77%	77%	16.00-24	16.00-24	276			
32 175A	W 2 3/4	23/8	17,000	13,000	101 1/2	105	135	93	103	246	235	100	-	-	94	94	18.00-25	18.00-25	282			
33 275A	W 4 1/2	33/8	22,000	17,000	128	121	155	107	123	277	284	106	-	-	96	96	26.5-25	26.5-25	324			
34 375A	W 6	5	29,000	22,000	140	123	159	120	136	311	326	122 1/2	-	-	106	106	29.5-29	29.5-29	355			
EMCO																						
35 630 Excavator	C 1/2	3/8	5,500	5,500	54	-	-	59 1/2	68 5/8	112	75 1/8	44	9	45	-	-	-	-	-	45		
36 105 Excavator	C 2	11/2	20,000	20,000	90	-	-	114	92	192	92	95	16	74	-	-	-	-	-	78		
37 172	C 2	13/4	15,000	20,000	92	44	144	120	82	192 1/2	188	88	18	74	-	-	-	-	-	80		
38 125	C 3	2 3/4	20,000	26,000	94	53	174 1/4	116	94	208	204	95	20	74	-	-	-	-	-	84		
39 126	C 3	23/8	25,000	33,000	94	53	174 1/4	116	94	217	210	96	20	74	-	-	-	-	-	84		
40 136 RD	C 3	23/8	25,000	33,000	96	53	174 1/4	132	94	224	213 1/2	96	16	70	-	-	-	-	-	83		
41 EECLO	L-7	W	19 cu ft	14 cu ft	3,000	2,200	49	60	70	60	50	121 1/2	116 1/2	40	-	-	40	36	7.50-16	6.00-9	81	
HOUGH																						
42 H-12	C 1 3/4	1 1/3	-	-	86	166	136	90	75	198	193	75	15	75	-	-	-	-	-	138		
43 HA	W 2	2 1/2	-	-	2,000	49	62 1/2	70	58	51	123	120	48	-	-	40	35	7.50-16	6.00-9	76		
44 H-25	W 3/4	2/3	-	-	2,500	53	64 1/2	79	62	49	123	119	48	-	-	40	35	7.50-16	6.00-9	76		
45 HAH	W 1	7/8	-	-	3,000	73	96	120	74	70	170	164	60	-	-	56	53	12.00-24	7.00-15	118		
46 H-30N	W 1	3/4	-	-	3,000	62	96	119	70	79	190	192 1/2	68.5	-	-	57	64	9.00-20	13.00-24	198		
47 H-30	W 1	3/4	-	-	3,000	81	100	122 1/2	85	80	196 1/2	195 1/2	75	-	-	66	66	12.00-24	12.00-24	214		
48 H-50	W	1 1/4	1	-	5,000	80	94	121	82 1/2	80	201	197	82	-	-	65	66	13.00-24	13.00-24	224		
49 H-70	W	2	13/4	-	7,000	92	108	137	86	86	220	215	86	-	-	70	70	14.00-24	14.00-24	246		
50 H-98	W	3	2 1/2	-	9,000	102	120	151	96	104	245	239	100	-	-	82	82	18.00-25	18.00-25	276		
51 H-120	W	4 1/8	33/8	-	12,000	120	130	175 1/2	147	129	204	203	106	-	-	93	93	26.5-25	26.5-25	276		

\* Bucket dimensions and overall dimensions given are those for bucket size shown. Practically all tractor shovels can be equipped with several sizes and types of buckets.

(a) Also available with electric motors.  
(b) Also available with GM diesel engine.  
(c) Also available with Cummins diesel engine.  
(d) Einco bucket capacities are for heavy duty rock buckets.

\*\* PS - Power Shift; TC - Torque Converter; PR - Power Reversing

(a) Also available with electric motors.

(b) Also available with GM diesel engine.

(c) Also available with Cummins diesel engine.

(d) Einco bucket capacities are for heavy duty rock buckets.

# Construction Methods AND EQUIPMENT

## Specs for Your Files...

Model	Model	ENGINE						TRANSMISSION						LIQUID CAPACITIES												
		DIESEL			GASOLINE			Type			Type			Type			Type									
		Rated HP	Rated RPM	No. of Cylinders	Displacement (cu. in.)	Rated HP	Rated RPM	No. of Cylinders	Displacement (cu. in.)	Selector Type	No. of Speeds	Overall Gear Ratio	No. of Speeds	Overall Gear Ratio	Shifting Weight (lb)	Brake Pail (lb)	Cooling System (gal)	Coolant (gal)	Transmission (gal)	Hydraulic System (gal)						
A-C	6,000	72	1,800	4	344	-	-	-	-	PR	4	2	5.5	4.1	-	21,000	16,870	40	9	12	20	108	1			
A-C	10,000	111	1,800	6	516	-	-	-	-	PR	6	3	5.7	4.6	-	32,000	25,910	60	11	17	27	192	2			
A-C	16,000	150	1,800	6	844	-	-	-	-	PR	3	2	7.2	5.5	-	48,000	48,000	100	16	26	104	220	3			
A-C	21,000	225	1,825	6	844	-	-	-	-	PR	2	1	7.8	3.0	-	66,500	70,000	135	18	37	160	240	4			
A-C	D262	76.5	2,200	6	262	A-C	G226	77	2,000	4	226	PR	4	4	21.2	4.3	F R	10,850	-	22	5%	7	32	100	5	
A-C	D262	76.5	2,200	6	262	A-C	G226	77	2,000	4	226	PR	3	3	26	4.3	A R	14,650	-	33	5%	7	36	116	7	
A-C	60A273	83	2,200	6	273	A-C	G262	86	2,200	6	262	PR	3	4	22.3	2.9	A R	10,000	-	33	8	13	36	128	8	
A-C	D516	104	2,200	4	344	Herc.	GDO-339	109	2,200	6	339	PS	3	3	30	30	A R	23,300	-	35	10%	15	37	135	9	
A-C	I11,000	184	2,200	6	516	-	-	-	-	PS	3	3	30	30	Air	28,510	-	38	9	23	34	136	10			
Case	G1480	42	1,850	4	188	Case	G1480	42	1,850	4	148	Sig. Shift	3	1	4.5	2	Diff.	-	9,391	5,815	17	3	5%	8	36	11
Cent.	ED200	62	2,250	4	208	Cent.	F209	62	2,250	6	209	TC PS	4	4	6.5	7.2	Hyd.	-	11,700	15,860	25	4%	7	24	32	12
Case	A3010	72	2,000	4	301	-	-	-	-	TC PS	4	4	6	6.6	Hyd.	-	16,900	23,000	36	9	12	32	56	13		
Cent.	HD277	80	2,250	4	277	-	-	-	-	TC PS	4	4	6	7.2	Hyd.	-	20,570	28,700	48	7%	11%	46	96	14		
Cent.	JD382	100	2,000	4	382	-	-	-	-	TC PS	4	4	6	7.2	Hyd.	-	23,470	25,000	45	8%	11%	46	96	15		
Case	G1880	57	2,250	4	188	Case	188G	57	2,250	4	188	PR	4	4	18	23	Mech.	F R	9,067	-	18	4%	4	44	36	16
Case	301D	80	2,000	4	301	Case	284G	80	-	4	284	TC PS	3	3	23	23	Hyd.	A R	15,400	-	25	10%	9	30	56	17
Case	401D	100	1,800	6	401	-	-	-	-	TC PS	3	3	22	22	Hyd.	A R	18,000	-	35	10%	14	30	56	18		
Case	451D	120	2,000	6	451	-	-	-	-	TC PS	3	3	24	24	Hyd.	A R	20,940	-	40	10%	14	30	105	19		
CAT	D320	52	1,800	4	251	-	-	-	-	Twin Motors	4	2	5.8	3.67	-	16,350	-	65	5	14	8	88	28			
CAT	D330	100	1,960	4	350	-	-	-	-	PS	4	4	4.9	6.2	-	24,800	-	52	10%	16	68	110	21			
CAT	D333	150	1,950	6	525	-	-	-	-	PS	4	4	4.7	5.7	-	36,270	-	70	13%	22	56	146	22			
CAT	D320	80	2,400	4	251	Cont.	-	80	2,400	6	330	PS	-	H-6.8	L-8.7	Air Based	A R	D-15.978	-	30	9	D-16	32	112	23	
CAT	D330	105	2,200	4	350	Cont.	-	105	2,200	6	427	PS	-	H-18.9	H-20.4	Air Based	A R	D-20.945	-	40	8	D-16	38	124	24	
CAT	D333	140	2,200	6	525	-	-	-	-	PS	-	H-22.8	H-22.8	Air Based	A R	25,400	-	55	11%	28	44	124	25			
Wauk.	1800LC	42	2,200	4	144	Wauk.	180GLC	44	2,200	4	144	PS	2	1	11	10	Hyd.	F R	6,130	-	8	-	-	-	26	
-	-	-	-	-	-	Cont.	F226	66.5	2,200	6	226	PS	4	4	26	26	Hyd.	A R	10,000	-	30	-	-	-	27	
-	-	-	-	-	-	Cont.	F226	66.5	2,200	6	226	PS	4	4	26	26	Hyd.	F R	10,300	-	30	-	-	-	28	
Wauk.	1800LC	80	2,700	6	265	Wauk.	198GL	77	2,700	6	265	PS	4	4	26	26	Hyd.	A R	D-13.260	-	30	-	-	-	29	
GM	5043	107	2,200	4	212	Wauk.	195GK	.96	2,200	6	320	PS	4	4	26	26	Hyd.	A R	D-15.000	-	30	-	-	-	30	
Cumm.	JH	122	2,200	6	401	Wauk.	135GZ	122	2,200	6	426	PS	4	4	24	24	Hyd.	A R	22,100	-	40	-	-	-	31	
Cumm. <sup>(b)</sup>	C-175	162	2,200	6	464	-	-	-	-	PS	4	4	27	27	Air	A R	28,000	-	55	-	-	-	32			
Cumm. <sup>(b)</sup>	NT05-B1	262	2,100	6	743	-	-	-	-	PS	4	4	28	28	Air	A R	47,970	-	75	-	-	-	33			
Cumm. <sup>(b)</sup>	WRT05-B1	335	2,100	6	743	-	-	-	-	PS	4	4	25	25	Air	A R	62,000	-	120	-	-	-	34			
Eimco	201 AH <sup>(a)</sup>	28	750	5	-	-	-	-	-	Twin Motors	1	1	1.5	1.5	-	10,350	10,000	-	-	-	-	-	35			
GM <sup>(c)</sup>	4080	143	2,000	4	284	-	-	-	-	PS	2	2	5.5	5.5	-	30,500	55,000	45	9	13	120	16	36			
Cumm. <sup>(b)</sup>	JN-6-81	122	2,200	6	401	-	-	-	-	PS	4	4	6.5	6.5	-	31,900	32,500	45	11	12	96	240	37			
GM	4000	143	2,000	4	284	-	-	-	-	PS	2	2	5.5	5.5	-	46,000	55,000	60	9	13	128	420	38			
GM	64-71	218	2,100	6	425.6	-	-	-	-	PS	2	2	6.0	6.0	-	49,500	64,000	60	16	20	128	420	39			
GM	64-71	218	2,100	6	425.6	-	-	-	-	PS	2	2	6.0	6.0	-	51,000	64,000	45	16	20	128	420	40			
-	-	-	-	-	-	Cont.	F-162	49	2,400	4	162	PS	2	2	11.4	11.4	Hyd.	R	5,300	-	6.2	3	4	11	16.5	41
IH	UD-370	91.5	2,000	4	370	-	-	-	-	PS	3	3	10.0	11.6	Hyd.	-	22,400	22,000	44	10%	11	24	114	42		
Wauk.	1800LC	38	2,000	4	144	Wauk.	FC	33	2,000	4	133	TC	2	2	6.3	10.2	Hyd.	F R	5,350	3,000	6.5	4	95	15	12	43
Wauk.	1800LC	42	2,200	4	144	Wauk.	180GK	48	2,200	4	155	TC	2	2	11.0	11.0	Hyd.	F R	6,250	3,500	9	4	6	115	26	44
-	-	-	-	-	-	Herc.	JX4C-3	51	2,000	4	188	TC	4	4	17.7	23.8	Hyd.	F R	9,000	5,000	15	45	56	15	32	45
IH	UD236	71.5	2,200	6	236	IH	U240	77.5	2,200	6	240	PS	3	3	21.3	25.7	Hyd.	A R	10,500	7,350	31	46	9	24	66	47
IH	UD282	90	2,200	6	282	IH	U264	92	2,200	6	264	PS	3	3	19.7	23.0	Hyd.	A R	14,050	10,000	30	6	8	24	60	48
Comm. <sup>(b)</sup>	JN-6B1	124	2,250	6	401	IH	U372	110	2,200	6	372	PS	3	3	22.0	28.0	Hyd.	A R	20,000	15,100	30	6	9	24	64	49
Comm. <sup>(b)</sup>	C-175	162	2,100	6	464	-	-	-	-	PS	3	3	29.0	29.8	Air	A R	28,450	29,000	40	9	14	30	102	50		
Comm. <sup>(d)</sup>	NRT-6B1	309	2,100	6	743	-	-	-	-	PS	4	4	26.0	26.0	Air	A R	45,000	33,000	36	12	40	45	188	51		

Allis-Chalmers Mfg. Co., Construction Machinery Div., Milwaukee 1, Wis.  
J. I. Case Co., 700 State St., Racine, Wis.  
Caterpillar Tractor Co., Peoria, Ill.  
Clark Equipment Co., Construction Machinery Div., Benton Harbor, Mich.  
Eimco Corp., 634-656 S. Fourth St., Salt Lake City 10, Utah  
Euclid Div., General Motors Corp., Hudson, Ohio  
The Frank G. Hough Co., Libertyville, Ill.

# TRACTOR SHOVELS . . . CONTINUED



MAKE AND MODEL

S/N	Type (Wheel or Track)	BUCKET*							OVERALL DIMENSIONS, IN.*										Overall Trailing Beam		
		Bucket Capacity (cu yd)	Stock Capacity (cu yd)	Lifting Capacity (t)	Carrying Capacity (t)	Width (in.)	Maximum Lifting Clearance under Bucket (in.)	Maximum Clearance under Bucket (in.)	Height	Width	Length (Bucket at 90°)	Length (Bucket in carrying position)	Width (Shoe or Track Length on Ground)	Width of Track Shoe	Track Gauge	Truck, Front	Truck, Rear	Tire Size, Front	Tire Size, Rear		
52	HY-DYNAMIC Dyna A	W	1	7/0	3,000	2,500	72	102	122	-	77	-	81	-	60	62	67	9.00-16	14.5-24		
53	HIT'L HARVESTER	C	3/4	3/4	-	-	62	114	117	52	62	-	83	66	10	48	-	-	-	-	
54	T-6 4 in 1	C	1 1/8	1 1/8	-	-	71	117	118	65 7/8	71	-	159	72 3/8	12	54	-	-	-	-	
55	T-6 Skid Shovel	C	1 1/8	1 1/8	-	-	71	98	118	65 7/8	71	-	159	72 3/8	12	54	-	-	-	-	
56	TD-6 4 in 1	C	1 1/8	1 1/8	-	-	71	117	118	65 7/8	71	-	159	72 3/8	12	54	-	-	-	-	
57	TD-6 Skid Shovel	C	1 1/8	1 1/8	-	-	71	98	118	65 7/8	71	-	159	72 3/8	12	54	-	-	-	-	
58	TD-9 4 in 1	C	1 1/2	1 1/2	-	-	70	125	126	72	78	-	175	81 1/2	15	60	-	-	-	-	
59	TD-9 Skid Shovel	C	1 1/2	1 1/2	-	-	78	102	126	72	78	-	169	81 1/2	15	60	-	-	-	-	
60	TD-15 4 in 1 (151 Set)	C	2 1/4	2 1/4	-	-	98	143	144	81 1/2	96	-	205	98 1/2	10	74	-	-	-	-	
61	TD-15 Skid Shovel (151 Set)	C	2 1/4	2 1/4	-	-	96	119	144	81 1/2	96	-	196	98 1/2	10	74	-	-	-	-	
62	TD-24-420 (201 Set)	C	3	3	-	-	96	157	156	85	96	-	236	100	10	74	-	-	-	-	
63	Int.-Drott 4 in 1	C	3	3	-	-	96	126	156	85	96	-	230	109	10	74	-	-	-	-	
64	LULL 44(a)	W	2	1 3/4	10,000	10,000	91 1/2	136	157	100	92	259	245	106	-	75	75	16.00-20	16.00-30	300	
65	MASSEY-FERGUSON 400	W	1	3/4	6,000	5,000	75	100 1/2	126	69	75	182	169	85	-	58	60	18.25-15	14.00-24	165	
66	3863	W	1	3/4	6,000	5,000	75	96	124	69	75	192 1/2	174	85	-	60	58	14.00-24	8.25-15	165	
67	3866	W	1	3/8	7,000	5,000	75	107	130	69	75	185	161	84	-	60	52 1/2	14.00-24	9.00-15	164	
68	MINNEAPOLIS-MOLINE M-Trac	C	1 1/8	2/8	4,700	-	72	98	126	75	72	176	177	74 1/2	12	54	-	-	-	82	
69	NELSON 150	W	1 5/8	1 1/4	9,000	5,500	91	198	138	88	93	289	284	95	-	75	75	13.00-24	13.00-24	240	
70	200	W	2 1/4	1 3/4	13,000	8,000	92	114	147	91	96	220	214	98	-	77	77	14.00-24	14.00-24	246	
71	25000	W	2 5/8	2	15,000	9,000	96	112	147	93	96	229	223	91	-	77	77	16.00-24	16.00-24	252	
72	OLIVER	OC-46	C	3/4	5/8	2,500	3,100	57 1/2	98	113	50	57 1/2	144	-	56 1/8	18	45	-	-	-	90
73	OC-56	C	1 1/4	1 1/4	5,100	4,500	70	96	117 1/2	63	70	161	-	71 7/16	12	54	-	-	-	90	
74	OC-126	C	1 5/8	1 1/2	6,000	10,500	80	92 1/2	123 1/2	57	60	165 1/2	-	71 1/2	13	60	-	-	-	126	
75	OC-156	C	2 1/2	2 1/4	9,000	12,000	96	110	132	67 1/2	96	180	-	87 1/8	16	74	-	-	-	130	
76	OTTAWA	Mausader	W	-	3/4	4,500	-	70	102	-	78	78	-	-	73	-	68	68	10.00-24	10.00-24	
77	PETTIBONE-MULLIKEN	125	W	1 1/2	1 1/4	11,000	6,000	76	98	130	84	87	216	225	94	-	62 1/4	70 1/4	13.00-24	13.00-24	278
78	125-A	W	1 1/2	1 1/4	11,000	6,000	76	98	130	84	87	216	225	94	-	62 1/4	70 1/4	13.00-24	13.00-24	278	
79	PM-240	W	2 1/4	1 3/4	13,000	7,000	91	96	134	95	87	217	-	94	-	69	69	14.00-24	14.00-24	293	
80	PM-240-A	W	2 1/4	1 3/4	13,000	7,000	91	96	134	95	87	217	-	94	-	69	69	14.00-24	14.00-24	293	
81	175	W	2 1/4	1 3/4	15,000	7,500	85	106	139	84	89	230	241	89	-	72	74	14.00-24	14.00-24	294	
82	PM-340	W	2 5/8	2 1/4	21,000	9,000	103	106	141	97	96	243	-	93	-	79	79	16.00-24	16.00-24	296	
83	250	W	3 1/4	2 1/2	21,000	10,500	96	106	144	96	98	249	242	89	-	79	80	16.00-24	16.00-24	325	
84	PM-440	W	3 1/4	2 3/4	21,000	11,000	108	108	142	102	107	254	-	100	-	85	85	20.5-25	20.5-25	337	
85	PM-440H	W	3 1/2	3	21,000	10,000	107 1/2	160	166	102	107 1/2	-	281	100	-	85 3/4	86 1/2	20.5-25	20.5-25	337	
86	SCOOPIEABLE (Removable Mtrs.)	H	W	1 1/4	1	5,350	8,000	79	108	141	94	82	180	195	113	-	67	-	13.00-24	8.00-20	94
87	HP	W	1 1/8	1	5,350	9,000	79	108	141	94	82	189	195	113	-	67	-	13.00-24	8.00-20	94	
88	LB-5	W	1 1/2	1 1/4	7,250	7,250	86	108	142	83	81	243	239	99	-	63	63	14.00-24	14.00-24	257	
89	LD-7	W	2	1 3/4	15,575	12,000	90	108	144	99	80	255	246	106	-	73	73	14.00-24	14.00-24	295	
90	LD-7A	W	2 1/2	2	17,900	15,000	96	108	148	101	92	257	240	107	-	73	73	16.00-24	16.00-24	322	
91	LD-8AD	W	3 1/2	3	23,930	25,000	98	120	166	101	103	298	286	137	-	83	73	18.00-25	18.00-25	296	
92	THEW-LORAIN ML-153B (New Shovel Co.)	W	1 3/4	1 1/2	12,000	6,000	93	108	144	99	95	213	220	95	-	14.00-24	14.00-24	252			
93	ML-157	W	2	1 3/4	14,000	7,000	93	108	144	99	95	216	223	95	-	-	-	14.00-24	14.00-24	252	
94	ML-300	W	3	2 5/8	18,000	9,000	103	204	156	109	108	240	250	95	-	-	-	16.00-24	16.00-24	296	
95	TROJAN (Troy & Towne Mfg. Co.)	114	W	1 1/8	1	7,000	-	88	106	122	72	90	200	204	88	-	76	76	12.00-24	12.00-24	257
96	134	W	1 1/3	1 1/8	8,000	-	94	104	122	75	93	206	204	92	-	76	76	13.00-24	13.00-24	257	
97	164	W	1 2/3	1 1/8	10,000	-	94	102	123	75	93	211	208	92	-	76	76	13.00-24	13.00-24	258	
98	204	W	2	1 3/4	12,000	-	94	102	127	75	94 1/2	217	215	92	-	76	76	14.00-24	14.00-24	260	
99	254	W	2 1/2	2 1/8	15,000	-	110	108	135	84	106	240	234	96	-	86	86	16.00-24	16.00-24	298	
100	304	W	3	2 1/2	18,000	-	110	110	141	84	108	254	248	95	-	86	86	15.00-24	16.00-24	298	
101	404	W	4	3 5/8	24,000	-	120	126	163	100	115	294	290	111	-	93	98	18.00-25	18.00-25	300	

\* Bucket dimensions and overall dimensions given are those for bucket size shown.

Practically all tractor shovels can be equipped with several sizes and types of buckets.

\*\* PS - Power Shift; TC - Torsion Converter; PR - Power Reversing

(1) Also available with GM diesel engine.

(2) Also available with Cummins gasoline engine.

(3) Includes torque converter.

(4) Also available with Hercules diesel engine.

(5) Also available with Waukesha gasoline engine.

(6) Also available with Waukesha diesel engine.

(7) Also available with Case diesel engine.

(8) Also available with Detroit Diesel Series 60 engine.

(9) Also available with Detroit Diesel Series 70 engine.

(10) Also available with Detroit Diesel Series 92 engine.

(11) Also available with Detroit Diesel Series 93 engine.

(12) Also available with Detroit Diesel Series 94 engine.

(13) Also available with Detroit Diesel Series 95 engine.

(14) Also available with Detroit Diesel Series 96 engine.

(15) Also available with Detroit Diesel Series 97 engine.

(16) Also available with Detroit Diesel Series 98 engine.

(17) Also available with Detroit Diesel Series 99 engine.

(18) Also available with Detroit Diesel Series 100 engine.

(19) Also available with Detroit Diesel Series 101 engine.

(20) Also available with Detroit Diesel Series 102 engine.

(21) Also available with Detroit Diesel Series 103 engine.

(22) Also available with Detroit Diesel Series 104 engine.

(23) Also available with Detroit Diesel Series 105 engine.

(24) Also available with Detroit Diesel Series 106 engine.

(25) Also available with Detroit Diesel Series 107 engine.

(26) Also available with Detroit Diesel Series 108 engine.

(27) Also available with Detroit Diesel Series 109 engine.

(28) Also available with Detroit Diesel Series 110 engine.

(29) Also available with Detroit Diesel Series 111 engine.

(30) Also available with Detroit Diesel Series 112 engine.

(31) Also available with Detroit Diesel Series 113 engine.

(32) Also available with Detroit Diesel Series 114 engine.

(33) Also available with Detroit Diesel Series 115 engine.

(34) Also available with Detroit Diesel Series 116 engine.

(35) Also available with Detroit Diesel Series 117 engine.

(36) Also available with Detroit Diesel Series 118 engine.

# Construction Methods AND EQUIPMENT

## Specs for Your Files...

Type	ENGINE										TRANSMISSION										LIQUID CAPACITIES						
	DIESEL					GASOLINE					Type					Type					Oil Tank (gal)		Cooling System (gal)				
	H.P.	Model	Rating HP	Rating RPM	No. of Cylinders	Displacement (cu. in.)	H.P.	Model	Rating HP	No. of Cylinders	Displacement (cu. in.)	Sliding Gear	Hyd.	No. of Spur Gears	No. of Spur Gears	No. Speed (RPM), (min)	No. Speed (RPM), (min)	Brake Torque	Brake + Final, (min)	Shipping Weight (lb)	Drumbar Pull (lb)	Crank Case (gal)	Transmission (gal)	Hydraulic System (gal)			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	10	-	Hyd.	-	12,000	-	18	5	-	-	52	
BR	C 335	45	2,000	4	135	-	-	-	-	-	-	-	-	5	5	5.9	7.2	-	-	9,900	-	14	-	-	-	53	
BR	C 285	55	1,850	6	260	-	-	-	-	-	-	-	-	4	2	5.6	3.6	-	-	14,750	-	33	11	9	16	54	
BR	C 286	55	1,650	6	260	-	-	-	-	-	-	-	-	4	2	5.6	3.6	-	-	14,000	-	33	11	9	16	55	
BR	D 282	55	1,650	6	282	-	-	-	-	-	-	-	-	4	2	5.6	3.6	-	-	15,075	-	33	11	9	16	56	
BR	D 282	55	1,650	6	282	-	-	-	-	-	-	-	-	4	2	5.6	3.6	-	-	14,450	-	33	11	9	16	57	
BR	DT 282	71	1,800	6	282	-	-	-	-	-	-	-	-	4	2	6.3	3.5	-	-	26,125	-	33	12 1/2	9	22	62	
BR	DT 282	71	1,800	6	282	-	-	-	-	-	-	-	-	4	2	6.3	3.5	-	-	19,200	-	33	12 1/2	9	22	59	
BR	B-554	125	1,850	6	554	-	-	-	-	-	-	-	-	6	6	5.8	7.1	-	-	34,112	-	61	28	28	28	60	
BR	D-554	115	1,650	6	554	-	-	-	-	-	-	-	-	6	6	5.8	7.1	-	-	32,650	-	61	28	28	28	61	
BR	DT-491	140	1,550	6	691	-	-	-	-	-	-	-	-	6	6	7.3	8.9	-	-	44,956	-	75	19	26	42	142	
BR	DT-491	140	1,550	6	691	-	-	-	-	-	-	-	-	6	6	7.3	8.9	-	-	44,131	-	75	19	26	42	126	
Herc.	DD-290 <sup>(a)</sup>	91	2,200	6	298	Herc. <sup>(f)</sup>	JXLD	115	2,400	6	339	TC	3	3	22	22	Hyd	A A	15,500	-	30	14	6	33	120	64	
-	-	-	-	-	-	Cont.	E-288	57.5	2,000	4	208	Hyd. Gearbox	5	5	16.05	16.05	Disc	R F	7,504	5,300	24	6	8	52	64	65	
-	-	-	-	-	-	Cont.	E-288	57.5	2,000	4	208	Hyd. Shifter	5	5	16.05	16.05	Disc	F R	10,542	5,300	24	6	8	52	64	66	
Parkes	4A-203	55	2,000	4	283	Cont.	G-183	57.5	2,000	4	193	Hyd. Shifter	4	4	18.95	18.65	Disc	F R	10,000	6,435	38	10	7	32	64	67	
Moline	D29KA-4	53	1,800	4	206	Moline	29KA-4	59	2,000	4	206	Pre-Select. with Rev. Shifter	5	5	7.25	9.07	Disc	-	14,700	10,000	34	3 1/2	6	194	36	68	
Herc. <sup>(k)</sup>	D-339H	108	2,200	6	339	Herc.	G-298	107	2,200	6	298	Sync. With	3	3	27	26.2	Hyd. Boxed	A R	15,700	-	30	8	8	30	92	69	
GM	3-71	109	2,200	3	213	Cont.	M-363	117	2,200	6	363	Synchro	3	3	27	26.2	Hyd. Boxed	A R	28,500	-	40	8	8	30	128	70	
Comco	JM6B1	123	2,200	6	401	-	-	-	-	-	-	-	-	3	3	27.6	35.2	Hyd. Boxed	A R	24,000	-	40	8	20	30	120	71
Herc.	DD-230	30.40	1,700	3	130	Herc.	GO-130	38.2	1,700	3	130	Synch. Gear	4	1	5.27	1.81	Band	-	7,600	5,124	11	3	5	8	20	72	
Herc.	DD-230 H	57	2,200	4	198	-	-	-	-	-	-	-	-	4	4	5.94	7.92	Hyd.	-	14,150	16,300	38	5 1/2	8	44 <sup>(a)</sup>	48	73
Herc.	DXC	68	1,750	6	298	-	-	-	-	-	-	-	-	4	2	5.27	3.6	Band	-	17,325	11,333	35	5	12	32	68	74
Herc.	DRXC	110	1,900	6	529	-	-	-	-	-	-	-	-	4	2	5.60	4.48	Band	-	27,700	17,210	46	10 1/2	16	36	104	75
-	-	-	-	-	-	Cont.	F-162	52	2,000	4	162	TC	4	4	18	-	Hyd.	A F	-	-	-	-	-	-	-	76	
Herc.	B-309 H	108	2,200	6	339	Herc.	GO-339	109	2,200	6	339	PS-TC-PR	4	4	22	24	Hyd.	A R	16,000	-	30	-	-	-	-	77	
GM <sup>(d)</sup>	3-71	108	2,200	3	213	Herc.	GO-339	109	2,200	6	339	PS-TC	3	3	27	28	Hyd.	A R	16,000	-	30	-	-	-	-	78	
GM <sup>(d)</sup>	3-71	108	2,200	3	213	Herc.	GO-339	109	2,200	6	339	PS-TC	4	4	19	23	Hyd.	A R	19,000	-	30	-	-	-	-	79	
GM <sup>(d)</sup>	3-71	108	2,200	3	213	Herc.	WKK-3	124	2,200	6	404	PS-TC	3	3	27	28	Hyd.	A R	19,400	-	30	-	-	-	-	80	
GM <sup>(d)</sup>	3-71	108	2,200	3	213	Herc.	WKK-3	124	2,200	6	404	PS-TC	4	4	20	24	Hyd.	A R	20,300	-	30	-	-	-	-	81	
GM <sup>(d)</sup>	4-71	152	2,200	4	283	Herc.	WKL-3	125	2,200	6	404	PS-TC	4	4	22	24	Hyd.	A R	25,000	-	40	-	-	-	-	82	
GM <sup>(d)</sup>	4-71	182	2,200	4	283	-	-	-	-	-	-	-	-	4	4	20	24	Hyd.	A R	25,500	-	43	-	-	-	-	83
Comco <sup>(b)</sup>	JMS	175	2,500	6	401	-	-	-	-	-	-	-	-	4	4	22	24	Hyd.	A R	31,000	-	50	-	-	-	-	84
Comco <sup>(b)</sup>	JMS	175	2,500	6	401	-	-	-	-	-	-	-	-	4	4	25	25	Air	A R	35,400	-	50	-	-	-	-	85
Waukegan	196DL	82	-	-	-	Chrys.	IND 6	103	2,600	6	265	Synch. Mech	4	4	20	20	Hyd.	F F	19,640	7,900	24	20	6	-	20	86	
Waukegan	196DL	82	-	-	-	Chrys.	IND 6	103	2,600	6	265	PS	4	4	20	20	Hyd.	F F	10,750	8,050	24	22	6	-	20	87	
Comco <sup>(f)</sup>	J-90	60	-	-	-	Chrys. <sup>(k)</sup>	IND 6	103	2,600	6	265	PS	4	4	25	25	Hyd.	A A	14,400	10,900	30	22	6	-	30	88	
Comco <sup>(f)</sup>	JF6	110	-	-	-	Waukegan	195 GK	102	2,400	6	260	PS or TC	3	3	23	23	Air/Hydr.	A A	18,325	13,750	33	27	7	36	33	89	
Comco	JMS	130	2,400	6	401	Waukegan	195 GK	132	2,400	6	436	PS or TC	3	3	23	23	Air/Hydr.	A A	22,130	16,000	33	34	8	36	33	90	
Comco	JMS	175	-	-	-	-	-	-	-	-	-	PS	4	4	25	25	Air/Hydr.	A A	33,350	25,000	100	52	22	32	100	91	
Comco	JF6B	110	2,200	6	403	Cont.	M-363	105	2,200	6	363	TC	4	4	19.5	19.5	Hyd.	A R	20,150	-	-	-	-	-	-	-	92
Comco	JF6B	110	2,200	6	401	Cont.	M-363	105	2,200	6	363	TC	3	3	24	26	Hyd.	A R	21,350	-	-	-	-	-	-	-	93
Comco	JN6B	175	2,500	6	401	Cont.	M-363	105	2,200	6	363	TC	4	4	22.4	22.4	Hyd.	A R	29,260	-	-	-	-	-	-	-	94
Waukegan	UD-236	76	6	236	I.H.	UD-240	105	2,300	6	240	PS	4	4	25	25	Hyd.	A R	13,000	-	25	5 1/4	7	24	92	95		
GM <sup>(d)</sup>	3-53	80	2,500	11	158.2	I.H.	UD-244	117	2,500	6	264	PS	4	4	24	24	Hyd.	A R	15,400	-	25	5 1/4	12	24	96	96	
GM <sup>(d)</sup>	3-71	105	2,200	3	212.8	Herc.	GO-298	104	2,200	6	298	PS	3	3	21	21	Hyd.	A R	17,500	-	25	6 1/2	13	24	96	97	
GM <sup>(d)</sup>	3-71	105	2,200	3	212.8	Herc.	GO-330	109	2,200	6	330	PS	3	3	21	21	Hyd.	A R	20,050	-	25	6 1/2	13	29	100	98	
GM <sup>(d)</sup>	4-71	147	2,200	4	283.7	I.H.	-	-	-	-	-	PS	4	4	24	24	Air/Hydr.	A R	25,000	-	60	11 1/2	15	40	100	99	
GM <sup>(d)</sup>	4-71	147	2,200	4	283.7	-	-	-	-	-	-	PS	3	3	21	21	Air/Hydr.	A R	28,700	-	60	11 1/2	15	40	100	100	
GM <sup>(d)</sup>	4-71	336	2,100	8	567.4	-	-	-	-	-	-	PS	3	3	20	20	Air/Hydr.	A R	44,500	-	80	16	24	56	200	101	

The Hy-Dynamic Co., Shakin Highway, Lake Bluff, Ill.  
 International Harvester Co., 100 N. Michigan Ave., Chicago 1, Ill.  
 Left Eng. Co., Inc., 3005 Hwy 13, St. Paul 11, Minn.  
 Massey-Ferguson Industrial Div., Massey-Ferguson, Inc.,  
 1009 S. West, Wichita 13, Kan.  
 Minneapolis-Honeywell Co.: Motor Industries, Inc., Hopkins, Minn.  
 N.P. Nelson Iron Works, Inc., 850 Bloomfield Ave., Clifton, N.J.

The Oliver Corp., 400 W. Madison St., Chicago 6, Ill.  
 Ottowa Diesel Div., Young Spring & Wire Corp., P.O. Box 39, Ottawa, Kan.  
 Petrelle Meillerie Mfrs., 3070 W. Division St., Chicago 51, Ill.  
 Scoville: Minneapolis Moline Mfrs., Inc., 8027 N.E. Killingsworth St., Portland 20, Ore.  
 The Neway Corp., E. 20th St., Lorain, Ohio  
 The Yale & Towne Mfg. Co., Trojan Div., Batavia, N.Y.

# MOTOR GRADERS

NAME AND MODEL	WEIGHT			HP	DIMENSIONS, IN.						TRAVEL SPEEDS						ENGINE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Front Wheels	Rear Wheels	Total	Width	Length	Height with Cab	Height less Cab	Wheel Base	Track, Front	Track, Rear	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd	24th	25th	26th	27th	28th	29th	30th	31st	32nd	33rd	34th	35th	36th	37th	38th	39th	40th	41st	42nd	43rd	44th	45th	46th	47th	48th	49th	50th	51st	52nd	53rd	54th	55th	56th	57th	58th	59th	60th	61st	62nd	63rd	64th	65th	66th	67th	68th	69th	70th	71st	72nd	73rd	74th	75th	76th	77th	78th	79th	80th	81st	82nd	83rd	84th	85th	86th	87th	88th	89th	90th	91st	92nd	93rd	94th	95th	96th	97th	98th	99th	100th	101st	102nd	103rd	104th	105th	106th	107th	108th	109th	110th	111th	112th	113th	114th	115th	116th	117th	118th	119th	120th	121st	122nd	123rd	124th	125th	126th	127th	128th	129th	130th	131st	132nd	133rd	134th	135th	136th	137th	138th	139th	140th	141st	142nd	143rd	144th	145th	146th	147th	148th	149th	150th	151st	152nd	153rd	154th	155th	156th	157th	158th	159th	160th	161st	162nd	163rd	164th	165th	166th	167th	168th	169th	170th	171st	172nd	173rd	174th	175th	176th	177th	178th	179th	180th	181st	182nd	183rd	184th	185th	186th	187th	188th	189th	190th	191st	192nd	193rd	194th	195th	196th	197th	198th	199th	200th	201st	202nd	203rd	204th	205th	206th	207th	208th	209th	210th	211st	212nd	213rd	214th	215th	216th	217th	218th	219th	220th	221st	222nd	223rd	224th	225th	226th	227th	228th	229th	230th	231st	232nd	233rd	234th	235th	236th	237th	238th	239th	240th	241st	242nd	243rd	244th	245th	246th	247th	248th	249th	250th	251st	252nd	253rd	254th	255th	256th	257th	258th	259th	260th	261st	262nd	263rd	264th	265th	266th	267th	268th	269th	270th	271st	272nd	273rd	274th	275th	276th	277th	278th	279th	280th	281st	282nd	283rd	284th	285th	286th	287th	288th	289th	290th	291st	292nd	293rd	294th	295th	296th	297th	298th	299th	300th	301st	302nd	303rd	304th	305th	306th	307th	308th	309th	310th	311st	312nd	313rd	314th	315th	316th	317th	318th	319th	320th	321st	322nd	323rd	324th	325th	326th	327th	328th	329th	330th	331st	332nd	333rd	334th	335th	336th	337th	338th	339th	340th	341st	342nd	343rd	344th	345th	346th	347th	348th	349th	350th	351st	352nd	353rd	354th	355th	356th	357th	358th	359th	360th	361st	362nd	363rd	364th	365th	366th	367th	368th	369th	370th	371st	372nd	373rd	374th	375th	376th	377th	378th	379th	380th	381st	382nd	383rd	384th	385th	386th	387th	388th	389th	390th	391st	392nd	393rd	394th	395th	396th	397th	398th	399th	400th	401st	402nd	403rd	404th	405th	406th	407th	408th	409th	410th	411st	412nd	413rd	414th	415th	416th	417th	418th	419th	420th	421st	422nd	423rd	424th	425th	426th	427th	428th	429th	430th	431st	432nd	433rd	434th	435th	436th	437th	438th	439th	440th	441st	442nd	443rd	444th	445th	446th	447th	448th	449th	450th	451st	452nd	453rd	454th	455th	456th	457th	458th	459th	460th	461st	462nd	463rd	464th	465th	466th	467th	468th	469th	470th	471st	472nd	473rd	474th	475th	476th	477th	478th	479th	480th	481st	482nd	483rd	484th	485th	486th	487th	488th	489th	490th	491st	492nd	493rd	494th	495th	496th	497th	498th	499th	500th	501st	502nd	503rd	504th	505th	506th	507th	508th	509th	510th	511st	512nd	513rd	514th	515th	516th	517th	518th	519th	520th	521st	522nd	523rd	524th	525th	526th	527th	528th	529th	530th	531st	532nd	533rd	534th	535th	536th	537th	538th	539th	540th	541st	542nd	543rd	544th	545th	546th	547th	548th	549th	550th	551st	552nd	553rd	554th	555th	556th	557th	558th	559th	560th	561st	562nd	563rd	564th	565th	566th	567th	568th	569th	570th	571st	572nd	573rd	574th	575th	576th	577th	578th	579th	580th	581st	582nd	583rd	584th	585th	586th	587th	588th	589th	590th	591st	592nd	593rd	594th	595th	596th	597th	598th	599th	600th	601st	602nd	603rd	604th	605th	606th	607th	608th	609th	610th	611st	612nd	613rd	614th	615th	616th	617th	618th	619th	620th	621st	622nd	623rd	624th	625th	626th	627th	628th	629th	630th	631st	632nd	633rd	634th	635th	636th	637th	638th	639th	640th	641st	642nd	643rd	644th	645th	646th	647th	648th	649th	650th	651st	652nd	653rd	654th	655th	656th	657th	658th	659th	660th	661st	662nd	663rd	664th	665th	666th	667th	668th	669th	670th	671st	672nd	673rd	674th	675th	676th	677th	678th	679th	680th	681st	682nd	683rd	684th	685th	686th	687th	688th	689th	690th	691st	692nd	693rd	694th	695th	696th	697th	698th	699th	700th	701st	702nd	703rd	704th	705th	706th	707th	708th	709th	710th	711st	712nd	713rd	714th	715th	716th	717th	718th	719th	720th	721st	722nd	723rd	724th	725th	726th	727th	728th	729th	730th	731st	732nd	733rd	734th	735th	736th	737th	738th	739th	740th	741st	742nd	743rd	744th	745th	746th	747th	748th	749th	750th	751st	752nd	753rd	754th	755th	756th	757th	758th	759th	760th	761st	762nd	763rd	764th	765th	766th	767th	768th	769th	770th	771st	772nd	773rd	774th	775th	776th	777th	778th	779th	780th	781st	782nd	783rd	784th	785th	786th	787th	788th	789th	790th	791st	792nd	793rd	794th	795th	796th	797th	798th	799th	800th	801st	802nd	803rd	804th	805th	806th	807th	808th	809th	810th	811st	812nd	813rd	814th	815th	816th	817th	818th	819th	820th	821st	822nd	823rd	824th	825th	826th	827th	828th	829th	830th	831st	832nd	833rd	834th	835th	836th	837th	838th	839th	840th	841st	842nd	843rd	844th	845th	846th	847th	848th	849th	850th	851st	852nd	853rd	854th	855th	856th	857th	858th	859th	860th	861st	862nd	863rd	864th	865th	866th	867th	868th	869th	870th	871st	872nd	873rd	874th	875th	876th	877th	878th	879th	880th	881st	882nd	883rd	884th	885th	886th	887th	888th	889th	890th	891st	892nd	893rd	894th	895th	896th	897th	898th	899th	900th	901st	902nd	903rd	904th	905th	906th	907th	908th	909th	910th	911st	912nd	913rd	914th	915th	916th	917th	918th	919th	920th	921st	922nd	923rd	924th	925th	926th	927th	928th	929th	930th	931st	932nd	933rd	934th	935th	936th	937th	938th	939th	940th	941st	942nd	943rd	944th	945th	946th	947th	948th	949th	950th	951st	952nd	953rd	954th	955th	956th	957th	958th	959th	960th	961st	962nd	963rd	964th	965th	966th	967th	968th	969th	970th	971st	972nd	973rd	974th	975th	976th	977th	978th	979th	980th	981st	982nd	983rd	984th	985th	986th	987th	988th	989th	990th	991st	992nd	993rd	994th	995th	996th	997th	998th	999th	1000th	1001st	1002nd	1003rd	1004th	1005th	1006th	1007th	1008th	1009th	1010th	1011st	1012nd	1013rd	1014th	1015th	1016th	1017th	1018th	1019th	1020th	1021st	1022nd	1023rd	1024th	1025th	1026th	1027th	1028th	1029th	1030th	1031st	1032nd	1033rd	1034th	1035th	1036th	1037th	1038th	1039th	1040th	1041st	1042nd	1043rd	1044th	1045th	1046th	1047th	1048th	1049th	1050th	1051st	1052nd	1053rd	1054th	1055th	1056th	1057th	1058th	1059th	1060th	1061st	1062nd	1063rd	1064th	1065th	1066th	1067th	1068th	1069th	1070th	1071st	1072nd	1073rd	1074th	1075th	1076th	1077th	1078th	1079th	1080th	1081st	1082nd	1083rd	1084th	1085th	1086th	1087th	1088th	1089th	1090th	1091st	1092nd	1093rd	1094th	1095th	1096th	1097th	1098th	1099th	1100th	1101st	1102nd	1103rd	1104th	1105th	1106th	1107th	1108th	1109th	1110th	1111st	1112nd	1113rd	1114th	1115th	1116th	1117th	1118th	1119th	1120th	1121st	1122nd	1123rd	1124th	1125th	1126th	1127th	1128th	1129th	1130th	1131st	1132nd	1133rd	1134th	1135th	1136th	1137th	1138th	1139th	1140th	1141st	1142nd	1143rd	1144th	1145th	1146th	1147th	1148th	1149th	1150th	1151st	1152nd	1153rd	1154th	1155th	1156th	1157th	1158th	1159th	1160th	1161st	1162nd	1163rd	1164th	1165th	1166th	1167th	1168th	1169th	1170th	1171st	1172nd	1173rd	1174th	1175th	1176th	1177th	1178th	1179th	1180th	1181st	1182nd	1183rd	1184th	1185th	1186th	1187th	1188th	1189th	1190th	1191st	1192nd	1193rd	1194th	1195th	1196th	1197th	1198th	1199th	1200th	1201st	1202nd	1203rd	1204th	1205th	1206th	1207th	1208th	1209th	1210th	1211st	1212nd	1213rd	1214th	1215th	1216th	1217th	1218th	1219th	1220th	1221st	1222nd	1223rd	1224th	1225th	1226th	1227th	1228th	1229th	1230th	1231st	1232nd	1233rd	1234th	1235th	1236th	1237th	1238th	1239th	1240th	1241st	1242nd	1243rd	1244th	1245th	1246th	1247th	1248th	1249th	1250th	1251st	1252nd	1253rd	1254th	1255th	1256th	1257th	1258th	1259th	1260th	1261st	1262nd	1263rd	1264th	1265th	1266th	1267th	1268th	1269th	1270th	1271st	1272nd	1273rd	1274th	1275th	1276th	1277th	1278th	1279th	1280th	1281st	1282nd	1283rd	1284th	1285th	1286th	1287th	1288th	1289th	1290th	1291st	1292nd	1293rd	1294th	1295th	1296th	1297th	1298th	1299th	13

# Construction Methods AND Equipment

**Specs for Your Files...**

	Size, L. x W.	BLADE				SCARIFIER				TIMES		CAPACITIES			MISCELLANEOUS							
		Max. Lift Heavy Ground, In.	Min. Side Shift, In.	No. of Pitch Positions	Max. Back Cut Angle Deg.	Max. Shoulder Break, In.	Type of Lifting Mechanism	Lift Speed, In. Per Sec.	Weight, Lbs.	No. of Teeth	Space Between Tools, In.	Max. Pressure, Lbs.	Front	Rear	Fwd. Thrk. Gal.	Cooling System, Gal.	Chain Climb, In.	Transmission, Qts.	Control, Type	Steering, Type	Control Clearance, In.	Width of Side-Step Tires, In.
	10' x 15 1/2"	12	5 3/4	6	-	48 1/2	Hyd.	2.2	350	7	4 1/2	4,900	6.50-16	7.50-20	27	3	7	16	Hyd.	Manual	-	394 1
	10' x 15 1/2"	12	5 3/4	6	-	48 1/2	Hyd.	2.2	360	7	4 1/2	4,900	6.50-16	7.50-20	27	4	5	16	Hyd.	Manual	-	394 2
	12' x 22"	19 5/8	46 1/4	7	90	71 1/2	Mech.	2.12	1,500	11	4 1/2	5,400	9.00-24	13.00-24	63	7 3/4	12	8	Mech.	Manual	12 1/8	478 3
	12' x 22"	19 5/8	46 1/4	7	90	71 1/2	Mech.	2.12	1,500	11	4 1/2	5,400	9.00-24	13.00-24	63	7 3/4	12	8	Mech.	Manual	12 1/8	478 4
	12' x 22"	19 5/8	46 1/4	7	90	73 1/2	Mech.	2.12	1,575	11	4 1/2	5,200	9.00-24	13.00-24	63	9 1/2	14	8	Mech.	Hyd. Booster	12 1/8	480 5
	12' x 22 1/2"	15	82 1/2	7	90	99 1/2	HYDRAULIC	4.8	1,200	11	4 1/2	9,120	13.00-24	13.00-24	42	7 1/4	15	14			34	394 6
	12' x 22 1/2"	15	82 1/2	7	90	99 1/2		4.8	1,200	11	4 1/2	9,150	13.00-24	13.00-24	42	7 1/4	15	14			34	394 7
	12' x 22 1/2"	15	82 1/2	7	90	99 1/2		4.8	1,200	11	4 1/2	9,140	12.00-24	12.00-24	42	7 1/4	15	14			34	394 8
	12' x 22 1/2"	15	82 1/2	7	90	99 1/2		4.8	1,200	11	4 1/2	9,170	12.00-24	12.00-24	42	7 1/4	15	14			34	394 9
	12' x 22 1/2"	15	82 1/2	7	90	99 1/2		4.8	1,200	11	4 1/2	9,680	13.00-24	13.00-24	42	7 1/4	15	14			34	394 10
	12' x 22 1/2"	15	82 1/2	7	90	99 1/2		4.8	1,200	11	4 1/2	9,710	13.00-24	13.00-24	42	7 1/4	15	14			34	394 11
	12' x 22 1/2"	15	82 1/2	7	90	99 1/2		4.8	1,200	11	4 1/2	10,900	12.00-24	12.00-24	42	7 1/4	15	14			34	394 12
	12' x 22 1/2"	15	82 1/2	7	90	99 1/2		4.8	1,200	11	4 1/2	10,980	12.00-24	12.00-24	42	7 1/4	15	14			34	394 13
	13' x 24"	16	97	7	90	129		4.8	1,300	11	4 1/2	11,680	14.00-24	14.00-24	53	9	17	14			35	394 14
	13' x 24"	16	97	7	90	129		4.8	1,300	11	4 1/2	11,690	14.00-24	14.00-24	53	9	17	14			35	394 15
	13' x 24"	16	97	7	90	129		4.8	1,300	11	4 1/2	11,750	13.00-24	13.00-24	53	9	17	14			35	414 16
	13' x 24"	16	97	7	90	129		4.8	1,300	11	4 1/2	11,750	13.00-24	13.00-24	53	9	17	14			35	414 17
	13' x 24"	16	97	7	90	129		4.8	1,300	11	4 1/2	14,000	14.00-24	14.00-24	75	9	17	14			34 3/4	394 18
	13' x 24"	16	97	7	90	129		4.8	1,300	11	4 1/2	14,100	14.00-24	14.00-24	75	9	17	14			34 3/4	394 19
	13' x 24"	16	97	7	90	129		4.8	1,300	11	4 1/2	13,970	13.00-24	13.00-24	75	9	17	14			33	414 20
	13' x 24"	16	97	7	90	129		4.8	1,300	11	4 1/2	14,000	13.00-24	13.00-24	75	9	17	14			33	414 21
	13' x 24"	16	97	7	90	129		4.8	1,300	11	4 1/2	13,920	13.00-24	13.00-24	75	11	24	14			33	414 22
	13' x 24"	16	97	7	90	129		4.8	1,300	11	4 1/2	14,000	13.00-24	13.00-24	75	11	24	14			33	414 23
	12' x 24"	15	36	17	90	77	WORK GEAR	3.3	1,403	11	4 1/2	7,000	7.50-25	13.00-24	60	9	16	56	Mech.	Manual	18	423 24
	12' x 24"	16	36	17	90	77	WORK GEAR	3.3	1,403	11	4 1/2	7,000	7.50-25	13.00-24	60	9	16	56	Mech.	Manual	18	423 25
	12' x 24"	16	36	17	90	88	WORK GEAR	3	1,403	11	4 1/2	8,950	9.00-25	13.00-24	60	11	24	56	Mech.	Hyd. Booster	20	429 26
	12' x 27"	17 1/4	40 3/4L	15	90	88	WORK GEAR	3 3/4	1,403	11	4 1/2	9,325	14.00-24	14.00-24	60	11	24	56	Mech.	Hyd. Booster	22 3/4	432 27
	10' x 16 5/8"	12	6	6	-	HYDRAULIC	3	460	7	5	4,100*	7.50-20	7.50-20	23	4 1/2	8	16			21	372 28	
	10' x 20"	15 1/2	31	8	90	61	3	750	9	5	5,175*	10.00-24	10.00-24	33	5 1/4	9	48			19	396 29	
	12' x 24 1/2"	17 1/2	44	8	90	72	3	1,250	11	4 1/2	8,700*	11.00-24	13.00-24	70	15	16	45			21	400 30	
	12' x 24 1/2"	18 1/2	44	8	90	72	3	1,250	11	4 1/2	9,575*	11.00-24	13.00-24	70	21	28	45			22	400 31	
	12' x 25"	18 1/2	44	8	90	72	3	1,500	11	4 1/2	11,300*	14.00-24	14.00-24	70	15	-	45			22	400 32	
	12' x 24 1/2"	17 1/2	44	8	90	72	3	1,500	11	4 1/2	9,700*	14.00-24	14.00-24	75	34 3/4	20	36			22	400 33	
	12' x 25"	18 1/2	44	8	90	72	3	1,500	11	4 1/2	11,500*	14.00-24	14.00-24	60	11	28	42			22	400 34	
	14' x 30"	19 1/4	103	8	90	103	3	2,150	9	5 5/8	16,900*	16.00-24	16.00-24	90	16	29	44			30	400 35	
	9' x 13 1/2"	9	19 1/4	3	-	39	3	275	5	8	2,000	7.50-16	12.00-38	17	3	4	4 1/2			14	210 36	
	13' x 20"	17	L-52	6	90	78	3	1,350	11	4 1/2	13,100	16.00-24	16.00-24	70	9 1/2	24	58			32	545 37	
	12' x 24"	16	R-47	6	90	75 1/2	HYDRAULIC	3	1,400	11	4 1/2	10,500	13.00-24	13.00-24	54	11 1/2	16	28			29	400 38
	12' x 24"	17 1/2	L-28	10	90	75 1/2	HYDRAULIC	3	1,400	11	4 1/2	8,700	11.00-24	13.00-24	65	6 1/2	15	58 (a)			38 1/4	456 39
	12' x 26"	17 1/2	L-28	10	90	75 1/2	HYDRAULIC	3	1,400	11	4 1/2	10,450	13.00-24	13.00-24	65	7 1/2	22	58 (a)			38 1/4	456 40
	13' x 28"	17	L-32	10	90	81 1/2"	HYDRAULIC	3	1,500	11	4 1/2	10,750	14.00-24	14.00-24	65	13 1/2	24	58 (a)			38 3/4	456 41
	10' x 10"	17	32 1/2	6	90	54 1/4	HYD.	2.9	625	9	5	5,400	10.00-24	10.00-24	25	4	11	60 1/2	Hyd.	Manual	19	420 42
	12' x 25"	17 1/4	L-40	11	90	54 1/2 L-91 1/2	HYD.	2.7	1,315	11	4 1/2	6,620	7.50-24	12.00-24	52	13	11	63	Mech.	Manual	23	400 43
	12' x 25"	18	R-35	11	90	L-91 1/2	HYD.	2.7	1,315	11	4 1/2	6,620	9.00-24	13.00-24	52	13	11	63	Mech.	Manual	25	400 44
	12' x 25"	18 1/4	R-35	11	90	L-93 1/2	HYD.	2.7	1,315	11	4 1/2	6,750	9.00-24	13.00-24	52	13	16	63	Mech.	Manual	25	400 45
	12' x 25"	18 1/4	R-35	11	90	L-93 1/2	HYD.	2.7	1,450	11	4 1/2	9,000	9.00-24	13.00-24	60	13	16	63	Mech.	Manual	25	400 46
	12' x 25"	18	R-35	11	90	L-93 1/2	HYD.	2.7	1,450	11	4 1/2	9,000	9.00-24	13.00-24	60	16 1/2	16	92 (a)	Mech.	Mech.	25	400 47
	12' x 28"	18 3/4	R-36	11	90	L-93 1/2	HYD.	2.7	1,745	9	5 5/8	9,500	14.00-24	14.00-24	65	20	20	63	Mech.	Hyd.	28	400 48
	12' x 28"	18 3/4	R-36	11	90	L-93 1/2	HYD.	2.7	1,745	9	5 5/8	9,500	14.00-24	14.00-24	65	20 1/2	22	92 (a)	Mech.	Hyd.	28	400 49
	12' x 24"	17 1/2	48	15	90	81	HYDRAULIC		2,100	11	4 1/2	14,200	14.00-24	14.00-24	60	10 1/2	15	40	Hyd.	Com. Hyd.	21 1/2	360 50
	12' x 24"	17 1/2	48	15	90	81	HYDRAULIC		2,100	11	4 1/2	10,000	14.00-24	14.00-24	60	10 1/2	15	40	Hyd.	Com. Hyd.	28	456 51
	12' x 24"	17 1/2	48	15	90	81	HYDRAULIC		2,100	11	4 1/2	14,200	14.00-24	14.00-24	60	10 1/2	15	40	Hyd.	Com. Hyd.	23 1/2	456 52
	12' x 24"	18	40	15	90	85	HYDRAULIC		1,410	11	4 1/2	7,700	12.00-24	12.00-24	45	9 1/2	12	48	Hyd.	Com. Hyd.	23**	400 53
	12' x 24"	18	40	15	90	85	HYDRAULIC		1,410	11	4 1/2	6,650	12.00-24	12.00-24	45	10 1/2	13	48	Hyd.	Com. Hyd.	23	400 54
	12' x 24"	18	40	15	90	85	HYDRAULIC		1,410	11	4 1/2	9,875	12.00-24	12.00-24	45	10 1/2	15	48	Hyd.	Com. Hyd.	23 1/4	400 55
	12' x 24"	18	40	15	90	85	HYDRAULIC		1,410	11	4 1/2	9,900	14.00-24	14.00-24	45							

# PNEUMATIC-TIRED ROLLERS



MAKE AND MODEL

1	AMERICAN-HARRIETTA	AMPAC #4	WEIGHT, LBS.						COMPACTION*			WHEELS								
			Empty	With Water Ballast	With Wet Sand Ballast	Max. Weight Per Wheel	Water Ballast Capacity, Cu. Ft.		Empty	With Water Ballast	With Wet Sand Ballast	Total Rolling Width, In.	No. of Wheels, Front	No. of Wheels, Rear	Amount of Tire Overlap, In.	Tire Size, Standard	Tire Ply, Standard	Recommended Min. Tire Pressure, Psi		
							With Water Ballast	With Wet Sand Ballast												
2	AMERICAN ROAD RUNNER	11-WC (American Steel Works)	8,300	16,019	26,000	2,800	1,025	137	94.3	191.5	295	84%	5	6	1/2	7.50-15	4	25	35	6-1042
3	AUSTIN-WESTERN	PR-11	7,000	15,000	22,000	2,444	855	114.4	138	236	336	68	5	4	1/2	7.50-15	6	30	60	14
4	BRISBANE	SP-54-C	5,900	15,100	22,300	2,800	860	114	86.5	222	328	68	5	4	1/2	7.50-15	4	35	90	6-104
5	BRISBANE	SP-64-B	6,100	15,300	22,500	2,800	860	114	90	233	410	68	5	4	1/2	7.50-15	4	35	90	6-104
6	BRISBANE	SP-730-B	22,150	35,800	60,000	8,571	2,513	332	250	433	706	105	3	4	1	13.00-24	18	30	100	22-26
7	BROWNING	SPR-9	6,550	-	18,900	2,100	150	100	96	-	278	68	5	4	1/2	7.50-15	4	35	55	6
8	BROWNING	SPR-4	8,400	-	20,750	2,100	150	100	96	-	278	60	4	1/2	7.50-15	4	35	55	6	
9	BROWNING	SPR-9-A	6,400	-	18,750	2,088	150	100	94	-	276	68	5	4	1/2	7.50-15	4	35	55	6
10	BROWNING	SPR-9-B	6,330	-	18,650	2,070	150	100	93	-	274	68	5	4	1/2	7.50-15	4	35	55	6
11	BROWNING	SPR-11	8,300	-	26,050	2,440	230	149	99	-	319	84	5	6	1/2	7.50-15	4	35	55	6
12	BROWNING	SPR-13	8,460	-	27,000	2,080	250	149	85	-	272	99%	7	6	1/2	7.50-15	4	35	55	6
13	BROWNING	18-T-9	9,500	-	36,000	4,000	240	140	-	-	64	5	4	1	7.50-15	10	-	110	12	
14	BROWNING	25-T-11	18,470	-	50,000	4,545	490	300	196	-	532	94	5	6	1/2	9.00-20	12	60	100	-
15	BROWNING	33-T-7	21,300	-	65,500	9,500	520	390	250	-	703	85	3	4	1	13.00-24	18	70	100	22-26
16	BUFFALO-SPRINGFIELD	PSR-9	7,000	13,300	20,650	2,293	808	108	103	195	302	68	4	5	1/2	7.50-15	6	35	60	10
17	BUFFALO-SPRINGFIELD	PSR-30	23,400	39,575	60,269 <sup>(d)</sup>	8,600	2,040	273	272	460	701	86	3	4	1/2	13.00-24	18	60	100	22-26
18	FERGUSON	SP-10	7,170	-	21,470	2,385	-	110	106	-	315	68	4	5	1	7.50-15	4	34	50	6-12
19	FERGUSON	SP-12	8,600	-	24,800	2,255	-	147	100	-	300	83	5	6	1	7.50-15	4	34	50	6-12
20	FERGUSON	2511	16,500	-	50,000	4,545	-	283	166	-	520	96	5	6	1	9.00-20	10	60	90	12-14
21	FERGUSON	3507	23,000	-	70,000	10,000	-	402	238	-	769	96	3	4	-	13.00-24	18	60	90	22-26
22	GALION	9-T-12	9,200	18,000	30,000	3,300	970	130	128	250	414	68%	5	4	1/2	7.50-15	6	-	55	4-104
23	GRACE	9-H	7,000	18,000	36,000	4,000	1,000	180	100	261	522	69	4	5	1/2	7.50-15	4	28	90	120
24	GRACE	30-B	20,000	-	65,000	9,225	-	400	190	NA	738	88	3	4	1	13.00-24	18	60	120	12
25	HERCULES (Wichita Steel Fabricators, Inc.)	SP-11	8,500	16,600	26,700	2,465	975	130	100	200	320	83	5	6	1/2	7.50-15	6	35	55	4-5
26	HISTER	C-500-A	17,650	-	40,500 <sup>(e)</sup>	4,500	-	67.5	229	-	525 <sup>(e)</sup>	77	4	5	7/8	9.00-20	12	35	130	10-15
27	INGRAM (Acme Iron Works)	10-Ton	7,700	13,940	20,375	2,256	755	101	164	221	298	68	4	5	1/2	7.50-15	4	25	35	6-10
28	INGRAM	12-Ton	11,700	17,940	24,375	2,708	755	101	224	255	332	68	4	5	1/2	7.50-15	6	35	55	10-12
29	INGRAM	18-Ton	11,280	21,700	36,000	4,000	1,249	167	285	416	571	68	4	5	1/2	7.50-15	10	50	110	12
30	INGRAM	35-Ton	23,200	46,000	70,000	10,000	2,734	365	254	535	770	96	3	4	1	13.00-24	18	55	100	22-26
31	LITTLE FORD	9R-12	7,520	18,200	24,000	2,658	1,050	167	258	367	475	68	5	4	1/2	7.50-15	4	28	90	6-10
32	LITTLE FORD	9S-14	8,100	18,788	29,025	3,035	1,050	167	266	423	545	68	5	4	1/2	7.50-15	4	20	130	6-1044
33	ROSCO	SR-904-T	6,600	12,912	19,730	2,192	755	101	96	187	286	69	5	4	3/8	7.50-15	4	35	35	6-1044
34	ROSCO	SR-904	6,600	12,912	19,730	2,192	755	101	96	187	286	69	5	4	3/8	7.50-15	4	35	35	6-1044
35	ROSCO	SR-9-T-2	6,800	14,420	19,950	2,216	748	100	99	208	290	69	5	4	3/8	7.50-15	4	35	35	6-1044
36	SEAMAN-GUNNISON	7-200TR	14,000	19,250	40,000	4,180	730	175	R or S <sup>(h)</sup> O-520	R-96	15-72	2	8	-	F-15-26	10	12	30	-	
37	SEAMAN-GUNNISON	9-270TR	19,000	25,070	54,000	4,750	875	175	R or S <sup>(h)</sup> O-500	S-72	2	8	-	F-18-00-26	10	10	25	-		
38	SEAMAN-GUNNISON	10-300TD	20,500	25,400	60,000	5,600	600	275	R or S <sup>(h)</sup> O-650	R-99	2	8	-	F-18-00-26	10	10	25	-		
39	SEAMAN-GUNNISON	8-200TRV	16,200	21,450	40,000	4,180	730	160	R or S <sup>(h)</sup> O-450	S-94	2	8	-	F-17-50-15	10	35	100	-		
40	SEAMAN-GUNNISON	10-270TRV	20,400	25,400	54,000	4,750	875	160	R or S <sup>(h)</sup> O-500	R-96	2	8	-	F-18-00-26	10	10	25	-		
41	SOUTHWEST	PR-11	11,000	19,590	28,550	2,593	1,035	130	132	235	343	83	5	6	1/2	7.50-15	10	20	100	6
42	TAMPO	SP-312	6,200	14,400	21,200	2,656	808	120	105 <sup>(i)</sup>	348 <sup>(i)</sup>	435 <sup>(i)</sup>	68	5	4	1/2	7.50-15	4	25	110	6-14
43	TAMPO	SP-911	6,700	12,830	20,000	2,720	750	120	105 <sup>(i)</sup>	315 <sup>(i)</sup>	295 <sup>(i)</sup>	72	5	4	1/2	7.50-15	6	35	95	6-10
44	TAMPO	SP-111	8,500	16,000	24,000	2,180	900	120	114 <sup>(i)</sup>	251 <sup>(i)</sup>	315 <sup>(i)</sup>	88	5	4	1/2	7.50-15	6	35	95	6-10
45	TAMPO	SP-900	15,220	22,220	28,050	3,210	815	120	356 <sup>(i)</sup>	450 <sup>(i)</sup>	522 <sup>(i)</sup>	64	5	4	1/2	7.50-15	10	40	100	-
46	TAMPO	SP-107	20,700	42,000	60,500	6,642	2,558	342	434 <sup>(i)</sup>	862 <sup>(i)</sup>	960 <sup>(i)</sup>	85	3	4	1	13.00-24	18	40	150	22-26
47	THUNDERBIRD	9-YO	6,000	17,000	27,200	3,030	1,225	163	106 <sup>(j)</sup>	250 <sup>(j)</sup>	400 <sup>(j)</sup>	68	4	5	1/2	7.50-15	4	35	55	6-12
48	THUNDERBIRD	11-YO	7,400	17,600	27,800	2,535	1,225	163	906 <sup>(j)</sup>	217 <sup>(j)</sup>	335 <sup>(j)</sup>	83	4	5	1/2	7.50-15	4	35	55	6-12
49	THUNDERBIRD	9-YO-S	12,180	26,590	41,000	4,590	1,800	240	180 <sup>(j)</sup>	390 <sup>(j)</sup>	604 <sup>(j)</sup>	68	4	5	1/2	7.50-15	10	55	120	10-14
50	THUNDERBIRD	11-VVS	19,740	40,100	60,020	5,454	2,450	270	224	456	680	96	5	6	1	9.00-20	10	75	105	10-14
51	THUNDERBIRD	13-VVS	20,750	40,890	61,030	4,700	2,450	270	160	315	469	104	7	6	1	9.00-20	10	75	105	10-14
52	WESTERN	12-SP	8,720	16,150	23,720	2,633	900	120	107	256	376	68	4	5	1/2	7.50-15	4	35	90	6-10

\*Lbs. per linear inch of rolling width

<sup>(a)</sup>45 in 55 lb. pressure per sq. in.

of ground contact area depending on ballast and tire inflation pressure

(b) Available with Cont. V-24 gas engine

(c) Two 34 x 30-in. rolls on front

(d) Combination TC and spring loaded clutch

(e) Includes rubber cradle in tires

(f) Available with MM 445 engine

(g) Available with MM 114-D diesel

(h) Available with diesel engine

(i) Variable (torque converter)

(j) Available with Cont. HD-260 diesel

(k) Duo-Pactor: Combines pneumatic-tire and steel-roll compaction. In listing, "R" means rubber-tire roll, "S" means steel roll.

(l) Tri-Pactor: Same features as Duo-Pactor (k, above)

with added vibrator steel-wheel rolling.

(m) Lbs. per linear inch of tire contact width

(n) TA-Torque amplifier

(o) With steel slab and sand ballast

# Construction Methods AND EQUIPMENT

**Specs for Your Files...**

POWER TRAIN														DIMENSIONS, OVERALL, IN.						
Make	Model	Gas or Diesel	Max. Brake HP	Rated RPM	No. of Cylinders	Displacement, Cu. In.	Fuel Tank Capacity, Gal.	No. of Forward Speeds	Range of Forward Speeds, MPH	No. of Reverse Speeds	Range of Reverse Speeds, MPH	Clutch, Type	Steering Type	Length	Width	Height	Wheelbase	Ground Clearance	Outside Turning Radius	
Cont. <sup>(1)</sup>	F-244	G	70	2,000	6	244	33	4	0-15	4	0-15	TC	Hyd	246	92	104	163	9 3/4	288	1
M-M	445	G	57	1,800	4	206	14	5	0-19	5	0-19	TC	Hyd	161	84 1/2	95	126	10	240	2
FORD	223	G	78	2,000	6	223	26	4	0-19	4	0-19	TC	Hyd	153	70	89	120	11	252	3
Cont.	F-162	G	49	2,000	4	162	11	3	0-20	3	0-20	Fric.	Hyd	151	65	91	120	10 1/2	221	4
Cont. <sup>(a)</sup>	F-226	G	73	2,000	6	226	40	3	0-20	3	0-20	TC	Hyd	151	69	91	120	10 1/2	221	5
Cummins	JN-6	D	130	2,500	6	401	60	4	0-16	4	0-16	TC	Hyd	224	90	117	174	16	321	6
Cont.	F-244	G	64	1,800	6	244	16	4	2-13	4	2-13	TC	Hyd	178	69	74	116	9 1/2	234	7
Cont.	F-244	G	64	1,800	6	244	16	4	2-13	4	2-13	TC	Hyd	175	68	74	116	9 1/2	234	8
Cont.	F-162	G	40	1,800	4	162	11	4	2-13	4	2-13	TC	Hyd	178	69	74	116	9 1/2	234	9
Cont.	F-162	G	40	1,800	4	162	11	4	2-13	4	2-13	TC	Hyd	178	69	74	116	9 1/2	234	10
Cont.	F-244	G	64	1,800	6	244	44	4	2-13	4	2-13	TC	Hyd	192	90 1/2	74	129	9 1/2	244	11
Cont.	F-244	G	64	1,800	6	244	44	4	2-13	4	2-13	TC	Hyd	192	100 1/2	74	129	9 1/2	252	12
Cont.	F-244	G	64	1,800	6	244	44	4	2-13	4	2-13	TC	Hyd	193	66 1/2	93	131	9 1/2	240	13
Cont.	M-330	G	83	1,800	6	330	28	4	2-15	4	2-15	(c)	Hyd	228	96	100	160	12	296	14
Cont.	TD-427 <sup>*</sup>	D	114	1,800	6	427	43	5	2-14	5	2-14	TC	Hyd	252	91	112	176	14	320	15
Cont.	F-226	G	73	2,400	5	226	35	3	0-15	3	0-15	TC	Hyd	150	68	88	120	11	226	16
Cummins	JN-6P	D	125	2,500	6	401	50	3	0-20	3	0-20	TC	Hyd	228	85	121	174	15 1/2	318	17
Oliver <sup>(a)</sup>	S-660	G	42	2,000	4	155	15	6	2.5-4.5	2	2.5-4.5	Fric.-TC	Hyd	150	68	90	120	10 1/2	180	18
Oliver <sup>(a)</sup>	S-770	G	54	2,000	6	216	15	6	2.5-4.5	6	2.5-4.5	TC	Hyd	154	83	91	124	10	216	19
M-M <sup>(f)</sup>	Util.	G	57	1,300	4	283.7	21	6	2-14.5	6	2-14.5	Fric.	Hyd	172	96	87	136	11	276	20
GM	4-71	D	125	2,150	4	284	70	3	2-12	3	2-12	TC	Hyd	218	96	105	168	13	300	21
W-M <sup>(g)</sup>	UB-220	G	80	-	6	220	25	4	0.75-16	4	0.75-16	Fric.-TC	Hyd	150	69	95	120	11	221	22
Wis. Cont.	VR4D	G	54	1,800	4	255	30	4	2.5-15	4	2.5-15	TC	Hyd	162	76	90	120	10	192	23
TD-427	D	100	1,800	6	427	70	4	2.5-12	4	2.5-12	TC	Hyd	162	79	132	136	12	200	24	
M-M	445	G	57	1,800	4	206	15	5	0-16	5	0-16	TC	Hyd	150	84	78	120	10	192	25
Cat.	D-311H <sup>(e)</sup>	D	75	2,400	4	252	50	4	0-15	4	0-15	TC	Hyd	205	77	90	116	12 3/4	192	26
IH	UC-221	G	67	2,000	5	221	19	5	2.5-16	5	2.5-16	TC	Hyd	150	68	84	120	11	100	27
IH	UC-221	G	67	2,000	6	221	19	5	2.5-16	5	2.5-16	TC	Hyd	150	68	84	120	11	100	28
IH	UC-263	G	82	2,000	6	263	19	5	4.5-14.5	5	4.5-14.5	TC	Hyd	174	68	85	138	11	240	29
GM	4-71	D	125	2,150	4	284	26	5	2.4-14.4	5	2.4-14.4	TC	Hyd	214	96	120	174	14	320	30
Cont.	F-226	G	73	2,400	6	226	35	4	0-20	4	0-20	TC	Hyd	176	68	81	125	10	228	31
Cont.	F-226	G	73	2,400	6	226	35	4	0-20	4	0-20	TC	Hyd	176	68	81	125	10	228	32
Oliver <sup>(a)</sup>	66	G	41	2,000	4	144	13	(b)	0-14	(b)	0-14	TC	Hyd	151	68 1/2	92	121	10	216	33
Oliver <sup>(a)</sup>	66	G	41	2,000	4	144	13	5	2.6-7.8	2	4.3-6.8	Fric.	Hyd	151	69 1/2	92	121	10	216	34
Ford <sup>(g)</sup>	223	G	78	2,000	6	223	34	(b)	0-30	(b)	0-30	TC	Hyd	149	69 1/2	90	119	10	216	35
IH	460	D	70	1,800	6	236	100	10	1.8-18.0	2	2.0-5.0	Disc-TA <sup>(e)</sup>	Hyd	274	86	81	132	10	151	36
M-M	445	D	60	1,800	4	206	115	10	1.8	2	2.0-4.0	Disc.	Hyd	318	86	83	155	10	162	37
IH	600	D	90	2,400	6	282	33	10	1.8	2	2.0-4.0	Disc.	Hyd	342	95	88	180	12	174	38
M-M	M-5	D	80	1,800	4	336	100	10	1.8-18.0	2	2.0-5.0	Disc.	Hyd	330	86	81	135	10	151	39
IH	600	D	90	2,400	6	282	115	10	1.8	2	2.0-4.0	Disc.	Hyd	332	86	83	155	10	162	40
M-M	M-5	D	80	1,800	4	336	115	10	1.8	2	2.0-4.0	Disc.	Hyd	274	86	83	123	11	300	41
Cont.	226	G	73	2,400	6	226	25	4	0-21	4	0-21	TC	Hyd	155	68	89	125	10	264	42
Oliver <sup>(a)</sup>	550	G	45	2,200	4	155	10	6	0-11	6	0-11	TC	Hyd	154	72	88	124	10	240	43
Oliver <sup>(a)</sup>	880	G	65	2,200	6	265	20	6	0-20	6	0-20	TC	Hyd	155	88	92	127	10	240	44
Oliver <sup>(a)</sup>	880	G	65	2,200	6	265	20	6	0-20	6	0-20	TC	Hyd	166	64	83	130	10	208	45
Cummins	JN-6	D	130	2,500	6	401	50	4	0-14	4	0-14	TC	Hyd	227	96	120	177	14	295	46
Herc.	GO-226	G	76	2,400	4	226	12	4	0-15	4	0-15	Disc.	Hyd	151	80	105	125	10	228	47
Herc.	GO-226	G	76	2,400	4	226	12	4	0-15	4	0-15	Disc.	Hyd	151	85	105	125	10	224	48
Herc.	DD-226	D	76	2,400	4	226	12	4	0-15	4	0-15	TC	Hyd	161	80	105	149	10	228	49
Cont.	M-330	G	83	1,800	6	330	50	4	0-15	4	0-15	TC	Hyd	201	96	90	161	10	256	50
Cont.	M-330	G	83	1,800	6	330	50	4	0-15	4	0-15	TC	Hyd	201	110	90	161	10	300	51
M-M	600	G	57	1,800	4	206	59	5	0-16	5	0-16	TC	Hyd	160	67	84	127	10	208	52

American-Marietta Co., Construction Equipment Div., Milwaukee 1, Wis.

American Steel Works, 1211 W. 27th St., Kansas City 8, Mo.

Austin-Western, Baldwin-Lima-Hamilton Corp., Aurora, Ill.

Browne Inc., 1057 10th Ave., S.E., Minneapolis 14, Minn.

Brown Bros., 111 Hambie Ave., San Antonio 6, Tex.

Buffalo Springfield Co., Springfield, Ohio.

Ferguson: Shovel Supply Co., 4900 Hines Blvd., Dallas, Tex.

Galion Iron Works, Galion, Ohio.

W.E. Grace Mfg. Co., 6000 Lamar St., Dallas 15, Tex.

Hercules: Wichita Steel Fabricators, Inc., 3400 N. Broadway, Wichita 4, Kan.

Hyster Co., P.O. Box 4318, Portland 8, Oregon

Imagin: Acme Iron Works, 540 Culebra Ave., San Antonio, Tex.

Littlefield Bros., Inc., 457 Pearl St., Cincinnati, Ohio.

Rosco Mfg. Co., 3118 Stelling Ave., So., Minneapolis 6, Minn.

Seaman-Cunning Div., 13500 W. Carmen Ave., Milwaukee 18, Wis.

Southwest Welding & Mfg. Div., 3201 W. Mission Rd., Alameda, Calif.

Tampa Mfg. Co., 1146 West Laurel St., San Antonio 7, Texas.

Thunderbird Engineering, Inc., 2811 Dawson Rd., Tulsa, Oklahoma.

Western: Douglas Motors Corp., 1234 N. 62 St., Milwaukee 13, Wisc.

# STEEL ROLLERS



MAKE AND MODEL \*

TYPE	Portable Tandem, 3-Axle Tandem (A1), 3-Wheel	WEIGHT, LB										COMPRESSION LB/LIN IN./ROLL FACE							
		On Guide Roll(s), Dry			On Compression Roll(s), Dry			On Guide Roll(s), Water Ballast			On Compression Roll(s), Water Ballast			On Guide Roll(s), Wet Sand Ballast			On Compression Roll(s), Wet Sand Ballast		
		Total Weight, Dry	Total Weight, Water Ballast	Total Weight, Wet Sand Ballast	Total Weight, Dry	Total Weight, Water Ballast	Total Weight, Wet Sand Ballast	Total Weight, Dry	Total Weight, Water Ballast	Total Weight, Wet Sand Ballast	Total Weight, Dry	Total Weight, Water Ballast	Total Weight, Wet Sand Ballast	Guide Roll(s), Dry	Compression Roll(s), Dry	Guide Roll(s), Water Ballast	Compression Roll(s), Water Ballast	Guide Roll(s), Wet Sand Ballast	Compression Roll(s), Wet Sand Ballast
1	AMERICAN-MARIETTA AMROL # 5	Tandem	2,500	4,000	6,500	3,500	6,600	10,100	-	-	-	-	-	67	95	87	157	-	-
2	AMROL # 6	Tandem	3,460	4,790	8,250	4,500	7,400	11,900	-	-	-	-	-	85	104	112	176	-	-
3	AMROL # 8	Tandem	5,000	7,500	12,500	7,100	10,800	17,900	7,860	11,846	19,706	-	-	100	150	142	216	157	237
4	AMROL #12	Tandem	6,900	10,000	16,900	10,430	14,470	24,900	13,070	18,050	31,120	-	-	128	185	193	268	242	335
5	AUSTIN-WESTERN 3 1/2 ton	Tandem	2,690	4,258	6,948	3,565	6,487	10,052	-	-	-	-	-	67	101	89	154	-	207
6	5-8-ton	Tandem	4,868	6,755	11,623	6,768	9,755	16,523	-	-	-	-	-	97	135	133	195	-	255
7	8-12-ton	Tandem	6,369	10,100	16,469	9,812	14,471	24,283	-	-	-	-	-	118	131	184	268	-	348
8	10-14-ton	Tandem	6,369	13,723	20,091	9,812	18,094	27,906	-	-	-	-	-	118	254	184	335	-	416
9	8-11-ton 3-Wheel	3-Wheel	5,074	11,337	16,411	6,494	13,201	19,695	-	-	-	-	-	127	215	162	366	-	412
10	10-12-ton 3-Wheel	3-Wheel	6,930	13,132	20,062	8,730	16,392	25,122	-	-	-	-	-	157	328	198	409	-	488
11	12-14-ton 3-Wheel	3-Wheel	6,930	17,110	24,040	8,730	20,870	29,600	-	-	-	-	-	157	356	198	434	-	515
12	BROWNING 3-5-ton	Port, Tandem	2,750	4,150	6,900	3,875	6,325	10,200	5,720	8,358	14,078	-	-	69	99	97	151	143	199
13	5-8-ton	Tandem	4,150	6,150	10,300	6,125	10,075	16,200	7,950	13,750	21,700	-	-	83	123	122	202	158	275
14	8-10-ton	Tandem	5,750	10,250	16,000	7,300	12,950	20,250	8,750	15,350	24,100	-	-	115	205	146	259	175	307
15	8-12-ton	Tandem	6,500	9,700	16,200	10,675	13,575	24,250	14,580	17,118	31,698	-	-	120	180	198	251	270	317
16	4-6-ton 3-Wheel	3-Wheel	2,520	5,544	8,064	3,920	8,172	12,092	5,240	10,620	18,560	-	-	63	154	98	227	131	295
17	6-8-ton 3-Wheel	3-Wheel	3,680	8,496	12,176	4,720	11,304	16,024	5,680	13,932	19,612	-	-	126	236	118	314	142	387
18	8-10-ton 3-Wheel	3-Wheel	5,654	10,660	16,314	6,468	13,940	20,408	7,920	16,974	24,894	-	-	128	260	147	340	165	414
19	10-12-ton 3-Wheel	3-Wheel	6,820	13,448	20,268	8,184	16,400	24,584	9,460	19,147	28,607	-	-	155	328	186	400	215	467
20	12-14-ton 3-Wheel	3-Wheel	7,390	14,060	24,450	3,090	6,280	9,370	10,250	7,420	10,510	-	-	63	107	81	165	233	195
21	BUFFALO-SPRINGFIELD KT-7A	Tandem	2,390	4,060	6,450	3,090	6,280	9,370	-	-	-	-	-	63	107	81	165	-	195
22	KT-8	Port, Tandem	3,015	5,235	8,250	3,715	7,455	11,170	-	-	-	-	-	79	138	98	196	-	226
23	KT-15A5	Tandem	4,650	7,550	12,200	6,250	9,850	16,100	-	-	-	-	-	93	151	125	197	-	-
24	KT-15A6	Tandem	4,650	9,250	13,900	6,250	11,350	17,600	-	-	-	-	-	93	185	125	227	-	-
25	KT-15A8	Tandem	5,750	11,000	16,740	7,250	13,250	20,520	-	-	-	-	-	115	220	145	265	-	-
26	KT-24E	Tandem	6,815	10,000	16,815	9,677	14,500	24,177	-	-	-	-	-	126	186	173	269	-	-
27	KT-25E	Tandem	7,440	13,700	21,140	10,200	17,977	28,177	-	-	-	-	-	138	254	189	331	-	-
28	KX-25E 3 AT	3 AT	6,790	13,790	27,370	9,740	17,490	36,970	-	-	-	-	-	126	255	180	324	-	383
29	VM-31D 3-Wheel	3-Wheel	6,200	14,700	20,900	7,850	17,388	25,238	-	-	-	-	-	141	368	178	435	-	502
30	VM-32D 3-Wheel	3-Wheel	7,300	16,900	24,200	8,880	19,420	28,300	-	-	-	-	-	166	422	202	485	-	548
31	CH&E 3BT	Tandem	-	-	4,800	-	-	-	-	-	-	-	-	65	90	95	130	-	-
32	3BA	Tandem	-	-	6,300	-	-	-	-	-	-	-	-	65	130	95	165	-	-
33	ESSICK 560	Tandem	2,360	5,205	7,565	3,305	8,000	11,305	-	-	-	-	-	59	124	82	190	-	-
34	560C	Tandem	2,460	5,330	7,790	3,400	8,130	11,530	-	-	-	-	-	61	127	85	193	-	-
35	650C Port, Tandem	3-Wheel	2,575	6,255	9,400	3,500	9,600	13,100	-	-	-	-	-	64	162	86	228	-	-
36	FERGUSON 3-5-ton	Port, Tandem	2,846	4,284	7,130	3,950	6,400	10,350	4,100	7,872	11,972	-	-	71	102	98	152	102	187
37	4-6-ton	Port, Tandem	3,594	5,406	9,000	4,698	7,622	12,320	4,848	8,992	13,840	-	-	89	129	117	181	121	214
38	5-8-ton	Tandem	4,250	7,450	11,700	6,350	11,250	17,600	7,000	14,000	21,000	-	-	85	150	125	220	140	280
39	8-10-ton	Tandem	6,450	9,850	16,250	8,200	13,400	21,600	9,210	16,400	25,000	-	-	129	197	164	268	184	328
40	8-12-ton	Tandem	6,080	11,318	17,398	8,721	15,471	24,192	10,480	18,578	29,058	-	-	112	209	161	286	105	344
41	GALION 3-5-ton	Tandem	2,850	4,280	7,130	3,880	6,520	10,400	-	-	-	-	-	71	102	97	155	-	-
42	4-6-ton	Tandem	3,260	5,290	8,550	4,320	7,500	11,820	-	-	-	-	-	82	126	108	179	-	-
43	5-8-ton	Tandem	5,200	6,850	12,050	7,100	10,550	17,650	-	-	-	-	-	104	137	142	211	-	-
44	8-10 1/2-ton	Tandem	6,400	9,800	16,200	8,200	13,400	21,600	-	-	-	-	-	128	196	164	268	-	-
45	8-12-ton	Tandem	6,540	9,850	16,390	9,500	14,710	24,210	-	-	-	-	-	121	182	176	272	-	-
46	10-14-ton	Tandem	6,540	14,050	20,590	9,500	18,410	27,910	-	-	-	-	-	121	260	176	341	-	-
47	13-20-ton	3 AT	6,900	12,600	26,400	10,100	17,440	37,640	-	-	-	-	-	41,040	128	233	187	323	-
48	10-ton Spoke 3-Wheel	3-Wheel	6,200	15,410	21,610	-	-	-	-	-	-	-	-	141	321	-	-	-	-
49	12-ton Spoke 3-Wheel	3-Wheel	7,450	17,900	25,350	-	-	-	-	-	-	-	-	169	373	-	-	-	-
50	6-8 ton 3-Wheel	3-Wheel	3,840	8,760	12,600	5,500	11,500	17,000	-	-	-	-	-	93	219	134	288	-	-
51	8-10-ton 3-Wheel	3-Wheel	5,060	11,940	17,000	6,450	14,560	20,980	-	-	-	-	-	123	299	157	363	-	-
52	10-12-ton 3-Wheel	3-Wheel	6,300	13,800	20,100	8,440	17,400	25,840	-	-	-	-	-	143	345	192	435	-	-
53	12-14-ton 3-Wheel	3-Wheel	6,300	14,450	24,065	8,440	20,735	29,175	-	-	-	-	-	143	344	192	578	-	-
54	GENERAL 4-6-ton	Tandem	3,050	5,080	8,130	-	-	12,000	-	-	-	-	-	85	113	110	172	-	-
55	HUBER-WARCO 3-5-ton	Tandem	2,700	4,090	6,790	3,790	6,720	10,510	-	-	-	-	-	67	97	94	160	-	-
56	4-6-ton	Port, Tandem	3,330	4,920	8,250	4,360	7,660	12,020	-	-	-	-	-	83	117	109	182	-	-
57	5-8-ton	Tandem	4,820	7,440	12,260	6,560	10,740	17,300	-	-	-	-	-	96	148	131	214	-	-
58	8-10-ton	Tandem	6,460	9,780	16,260	8,180	12,760	20,940	-	-	-	-	-	129	195	163	254	-	-

\* With a dry weight of at least 6,000 lb.

\*\* Practically all models have a choice of gasoline engines.

+ Hydrostatic drive gives infinitely variable speed and eliminates clutch.

‡ Available with diesel engine.

(a) All models available with 4-speed transmission

(b) Available with 24-in. rolls.

(c) Available with 22-in. rolls.

(d) Available with 20-in. rolls.

(e) Available with 18-in. rolls.

(f) Available with torque converter and 2-range transmission (direct drive is standard)

(g) With machine in rolling position (wheels retracted).

(h) Torque converter available.

(i) Available with Cont. Y-112 WC engine.

(k) Speeds variable on torque converter models.

(l) Available with Herc. 1x B-5 WC engine.

(m) Available with direct drive.

# Construction Methods AND EQUIPMENT

Specs for Your Files...

ROLL DIMENSIONS, IN.												POWER TRAIN												DIMENSIONS, OVERALL, IN.			
						ENGINE						TRANSMISSION															
						Model	Gas or Diesel	Max. Brake HP	Rated RPM	No. of Cylinders	Fuel Tank Capacity, Gal.	No. of Forward Speeds	Range, Forward Speeds, MPH	No. of Reverse Speeds	Range, Reverse Speeds, MPH	Clutch Type	Steering, Type	Length	Width	Height	Wheelbase	Gearbox Clearance	Outside Turning Radius				
42	2	34x40	5/8	48x42	3/4	Ford	172	G <sup>+</sup>	52	1600	4 4	14	1+	0-5	1+	-+	Hyd	144	50	11	103	15	192	1			
42	2	34x40	5/8	48x42	3/4	Ford	172	G <sup>+</sup>	52	1600	4 4	14	1+	0-5	1+	-+	Hyd	144	50	11	103	15	192	2			
50	2	40x50	5/8	54x50	7/8	Cont.	FA-226	G	73	2400	6 4	50	2	1.5-5.5	2	1.5-5.5	TC	164	60	16	114	15	228	3			
54	2	48x54	7/8	60x54	1 1/2	Cont.	FA-226	G	73	2400	6 4	50	2	1.5-5.5	2	1.5-5.5	TC	181	64	16	124	17	252	4			
42	2	32x40	1/2	48x42	5/8	Wisc.	VG4D	G	36	2200	4 4	12 1/2	2	1.13-4.46	2	1.13-4.46	Fric.	129	52	69	85	11.3	170	5			
50	2	41x50	5/8	53x50	7/8	Ford	J	G <sup>+</sup>	75	1650	8 4	28	2(a)	.88-3.3	2	.88-3.3	TC	177	64	94	120	15.5	216	6			
54	2	48x54	5/8	60x54	1 1/4	Ford	J	G <sup>+</sup>	75	1650	8 4	28	2(a)	.99-3.72	2	.99-3.72	TC	190	68	98	130	19	240	7			
54	2	48x54	5/8	60x54	1 1/4	Ford	J	G <sup>+</sup>	75	1650	8 4	28	2(a)	.99-3.72	2	.99-3.72	TC	190	68	98	130	19	240	8			
67	2	41x40	3/4	60x18 <sup>b</sup>	1 1/2	Ford	J	G <sup>+</sup>	75	1650	8 4	33	2(a)	.99-3.72	2	.99-3.72	TC	205	67	79	130	15	227	9			
75	2	44x44	3/4	69x20 <sup>b</sup>	1 1/2	Ford	J	G <sup>+</sup>	75	1650	8 4	33	2(a)	1.14-4.3	2	1.14-4.3	TC	207	75	93	130	19.5	231	10			
83	2	44x44	3/4	69x24	1 1/2	Ford	J	G <sup>+</sup>	75	1650	8 4	33	2(a)	1.14-4.3	2	1.14-4.3	TC	207	83	93	130	19.5	231	11			
42	2	33x40	-	48x42	-	Cont.	Y-112	G <sup>+</sup>	29	1800	4 4	18	2	2-5	2	2-5	TC	132	53	80	86	12	162	12			
50	2	40x50	-	52x50	-	Cont.	F-162	G <sup>+</sup>	40	1800	4 4	28	4	2-14	4	2-14	TC	175	58	81	126	13	228	13			
50	2	40x50	-	52x50	-	Cont.	F-162	G <sup>+</sup>	40	1800	4 4	28	4	2-14	4	2-14	TC	175	58	81	126	13	228	14			
54	2	46x54	-	60x54	-	Cont.	F-244	G <sup>+</sup>	64	1800	6 4	28	4	2-14	4	2-14	TC	198	64	90	141	17	252	15			
68	2	38x40	-	55x18	-	Cont.	Y-112	G	29	1800	4 4	30	4	2-14	4	2-14	TC	180	72	60	112	12	192	16			
68	2	38x40	-	55x18	-	Cont.	F-162	G <sup>+</sup>	40	1800	4 4	30	4	2-14	4	2-14	TC	180	72	60	112	12	192	17			
81	2	42x44	-	60x20%	-	Cont.	F-244	G <sup>+</sup>	64	1800	6 4	30	4	2-14	4	2-14	TC	194	80	64½	124	12	210	18			
81	2	42x44	-	60x20%	-	Cont.	F-244	G <sup>+</sup>	64	1800	6 4	30	4	2-14	4	2-14	TC	194	80	64½	124	12	210	19			
84	2	42x44	-	60x24	-	Cont.	F-244	G <sup>+</sup>	64	1800	6 4	30	4	2-14	4	2-14	TC	194	84	64½	124	12	210	20			
38	2	30x38	-	40x38	-	Cont.	Y-112	G <sup>+</sup>	29	2000	4 4	12	2	.5-5.3	2	.5-5.3	Fric.	127	49	74 <sup>(a)</sup>	88	13	174	21			
38	2	30x38	-	40x38	-	Cont.	Y-112	G <sup>+</sup>	29	2000	4 4	12	2	.5-5.3	2	.5-5.3	Fric.	135	59 <sup>(a)</sup>	74 <sup>(a)</sup>	88	13 <sup>(a)</sup>	174	22			
50	2	40x50	-	53x50	-	Cont.	F-162	G <sup>+</sup>	49	2450	4 4	26	(k)	1.5-4	(k)	1.5-4	TC(m)	173	66	87	128	12.5	214	23			
50	2	40x50	-	53x50	-	Cont.	F-162	G <sup>+</sup>	49	2450	4 4	26	(k)	1.5-4	(k)	1.5-4	TC(m)	173	66	87	128	12.5	214	24			
54	2	48x54	-	60x54	-	Cont.	F-162	G <sup>+</sup>	49	2450	4 4	26	(k)	1.5-4	(k)	1.5-4	TC(m)	173	66	87	128	12.5	214	25			
54	2	48x54	-	60x54	-	Cont.	M-330	G <sup>+</sup>	67	1400	4 4	40	4	1.1-5	4	1.1-5	(f)	194	72	106	131	18.5	231	26			
54	2	48x54	-	60x54	-	Cont.	M-330	G <sup>+</sup>	67	1400	4 4	40	4	1.1-5	4	1.1-5	(f)	194	72	106	131	18.5	231	27			
54	2	48x54	-	60x54	-	Herc.	JXL	G <sup>+</sup>	72	1400	6	39	4	1.1-5	4	1.1-5	(f)	273	72	102	208	19	356	28			
76	2	44x44	-	69x20 <sup>(b)</sup>	-	Herc.	JXL	G <sup>+</sup>	72	1400	6	43	4	1.1-5	4	1.1-5	(f)	209	76	81	128	15	228	29			
76	2	44x44	-	69x20 <sup>(b)</sup>	-	Herc.	JXL	G <sup>+</sup>	72	1400	6	43	4	1.1-5	4	1.1-5	(f)	209	76	81	128	15	228	30			
36	2	28x32	-	-	1 1/8	Wis.	TH	G	14	2400	2 4	6.5	1	.5-3	1	.5-3	Fric.	112	44	59	74	8	180	31			
36	2	28x32	3-8	-	2 1/2	Wis.	VE4	-	20	2400	4 4	6.5	1	.5-3	1	.5-3	Fric.	112	44	74	74	9	180	32			
42	2	34x40	1/2	48x42	3/4	Wis.	VH-4D	G	30	2800	4	9	2	1.5-5	2	1.5-5	Fric.	125	52	75	78	15	180	33			
42	2	34x40	1/2	48x42	3/4	Cont.	Y-112	G	32	2400	4	9	2	1.5-5	2	1.5-5	Fric.	125	75	75	78	15	180	34			
42	2	34x40	1/2	48x42	3/4	Cont.	Y-112	G	32	2400	4	9	2	1.5-5	2	1.5-5	Fric.	135	83	75	78	5.5	180	35			
42	2	33x40	5/8	48x42	3/4	Wisc.	VH-4	G	26.5	2200	4	7	2	1.9-4.5	2	1.9-4.5	Fric.	132	80	60	86	12	202	36			
42	2	33x40	3/4	48x42	1 1/4	Cont.	Y-112	G	32	2400	4	7	2	1.9-4.5	2	1.9-4.5	Fric.	132	80	60	86	12	202	37			
50	2	40x50	3/4	53x50	1	Cont.	Y-112	G <sup>+</sup>	49	2400	6	4	25	2	1.4-5	2	1.4-5	TC	174	60	67	124	13	216	38		
50	2	40x50	3/4	53x50	1	Cont.	F-162	G	49	2400	6	4	25	2	1.4-5	2	1.4-5	TC	174	60	67	124	13	216	39		
54	2	48x54	3/4	60x54	1 1/4	Cont.	F-162	G <sup>+</sup>	73	2400	6	4	25	2	1.5-5	2	1.5-5	TC	199	69	95	141	15	228	40		
42	2	34x40	5/8	48x42	13/16	Cont.	Y-112	G	32	2400	4	4	11	2(k)	.5-5.6	2	.5-5.6	TC	150	50	80	103	15	168	41		
42	2	34x40	5/8	48x42	13/16	Cont.	Y-112	G	32	2400	4	4	11	2(k)	.5-5.6	2	.5-5.6	TC	150	58	80	103	9	168	42		
50	2	40x50	13/16	53x50	15/16	IHC	UB220	G <sup>+</sup>	70	2400	6	4	25	2(k)	.5-5.5	2	.5-5.5	TC	187	62	87	134	15	216	43		
50	2	40x50	13/16	53x50	15/16	IHC	UB220	G <sup>+</sup>	70	2400	6	4	25	2(k)	.5-5.5	2	.5-5.5	TC	187	62	87	134	15	216	44		
54	2	48x54	13/16	60x54	1 1/8	IHC	UB-264	G <sup>+</sup>	90	2400	6	4	25	2(k)	.5-5.5	2	.5-5.5	TC	204	67	94	142	16	228	45		
54	2	48x54	13/16	60x54	1 1/8	IHC	UB-264	G <sup>+</sup>	90	2400	6	4	25	2(k)	.5-5.5	2	.5-5.5	TC	204	67	94	142	16	228	46		
54	2	48x54	13/16	60x54	1 1/8	IHC	UB-264	G <sup>+</sup>	90	2400	6	4	31	2(k)	.5-5.5	2	.5-5.5	TC	276	68	92	209	14	356	47		
84	2	44x44	2	69x24 <sup>(d)</sup>	2 3/8	IHC	UB-264	G <sup>+</sup>	90	2400	6	4	38	2(k)	.5-5.5	2	.5-5.5	TC	213	84	81	135	18	217	48		
74	2	44x44	2	69x24 <sup>(d)</sup>	3 1/4	IHC	UB-264	G <sup>+</sup>	90	2400	6	4	38	2(k)	.5-5.5	2	.5-5.5	TC	213	84	81	135	18	217	49		
74	2	38x41	13/16	60x20	13/16	IHC	UB-220	G <sup>+</sup>	70	2400	6	4	26	2(k)	.5-5.5	2	.5-5.5	TC	200	74	71	128	15.5	216	51		
72	2	44x44	1 3/8	69x20 <sup>(b)</sup>	1 1/2	IHC	UB-264	G <sup>+</sup>	90	2400	6	4	26	2(k)	.5-5.5	2	.5-5.5	TC	213	84	81	145	18	217	52		
72	2	44x44	1 3/8	69x20 <sup>(b)</sup>	1 1/2	IHC	UB-264	G <sup>+</sup>	90	2400	6	4	38	2(k)	.5-5.5	2	.5-5.5	TC	213	84	81	135	18	217	53		
45	2	30x36	-	39x45	-	Wisc.	THD	G	18	-	2	-	1	2.45	1	2.45	Hyd	117	49	52%	81	13	174	54			
42	2	34x40	5/8	48x42	3/4	Herc.	I x B	G <sup>+</sup>	41	2400	4	4	16/12	1	.5-5.6	1	.5-5.6	TC	131	55	73	84	12	138	55		
42	2	34x40	5/8	48x42	3/4</																						



## Specs for Your Files...

### TRACTOR-DRAWN SCRAPERS

## Construction Methods AND EQUIPMENT



MAKE AND MODEL		Recommended Tractor DBHP	GENERAL DATA					PERFORMANCE DATA					DIMENSIONS, OVERALL																	
			Shuck Capacity, Yds.	Hinged Capacity, Yes.	Capacity, Tons	Control, Type	Ejection, Type	Width of Cut, In.	Depth of Cut, In.	Depth of Spaded, In.	Ayres Opening, In.	Width of Non-Stop Turn, In.	% on Front Wheels, Empty	% on Rear Wheels, Empty	% on Front Wheels, Full	% on Rear Wheels, Full	Length, In.	Width, In.	Height, In., Blade on Ground	Bottom Dimensions, In.	Height of Sides, In.	Wheel Base, In.	Standard Tires, Front	Standard Tires, Rear	Gage, Front	Gage, Rear	Weight, Shipping			
1 ALLIS-CHALMERS	106		6.1	8.5	10	Cable	POSITIVE	FORCED	93	9	10	78	243	45	55	55	303	113	82	35 x 93	38	168	14.00-20	14.00-20	53	74	10,300	1		
2	108		8.4	12	14	Cable	POSITIVE	FORCED	102	10	12	92	291	45	55	45	334	124	96	42 x 102	42	195 <sup>1</sup> / <sub>2</sub>	16.00-20	16.00-20	69	82	15,250	2		
3	315		15	20	25	Cable	POSITIVE	FORCED	116	8	20	102	337	45	55	45	406	138	110	49 x 116	62	232.5	21.00-24	21.00-24	76	88	26,475	3		
4 ALLIED	KS-700	65-85	7	9		Cable	POSITIVE	FORCED	84	12	15	45	216				306	102	93	43 x 84	46	204	16.00-21	16.00-21	63	63	16,000	4		
5	KS-800	85-115	8.2	11		Cable	POSITIVE	FORCED	102	12	20	55	228				384	120	104	48 x 102	40	220	16.00-25	16.00-25	80	80	19,500	5		
6	KS-1000	100-135	10	13		Cable	POSITIVE	FORCED	102	12	20	55	228				384	120	104	48 x 102	50	220	16.00-25	18.00-25	80	80	20,500	6		
7	KS-1500	135-170	15	19		Cable	POSITIVE	FORCED	120	12	24	59	300				464	142	110	77 x 120	50	208	21.00-25	21.00-25	93	93	33,100	7		
8	KS-1700	135-170	17	21		Cable	POSITIVE	FORCED	120	12	24	59	300				464	142	110	77 x 120	57 <sup>1</sup> / <sub>2</sub>	288	21.00-25	24.00-29	93	93	34,100	8		
9 BE-GE	ST-8590	50-70	6.7	9	10.3		HYDRAULIC	POSITIVE ROLL OUT	102	13	14	52	262	48	52	44	319	122	74	42 x 102	43	188	14.00-21	14.00-21	58	83	12,600	9		
10	ST-85105	50-70	8.2	10.5	12		HYDRAULIC	POSITIVE ROLL OUT	102	13	14	52	262	47	53	44	319	122	74	42 x 102	49	188	14.00-21	16.00-21	58	83	13,000	10		
11	ST-85120	60-95	8.5	12	13.4		HYDRAULIC	POSITIVE ROLL OUT	102	11	16	58	286	48	52	44	354	123	86	48 x 102	46	213 <sup>1</sup> / <sub>2</sub>	16.00-25	16.00-25	66	80	15,300	11		
12	ST-85140	60-95	10.5	14	16.1		HYDRAULIC	POSITIVE ROLL OUT	102	11	16	58	286	47	53	44	354	123	86	48 x 102	58	213 <sup>1</sup> / <sub>2</sub>	16.00-25	18.00-25	66	80	16,500	12		
13 CATERPILLAR	60	75	7	9	11.5		CABLE	POSITIVE	102	13	14	52	262	48	52	44	319	122	74	42 x 102	43	188	14.00-21	14.00-21	58	83	12,600	9		
14	435	75-180	15	19	22.5		CABLE	POSITIVE	102	13	14	52	262	47	53	44	319	122	74	42 x 102	49	188	14.00-21	16.00-21	58	83	13,000	10		
15	463	180-300	22	28	33		CABLE	POSITIVE	102	11	16	58	286	48	52	44	354	123	86	48 x 102	46	213 <sup>1</sup> / <sub>2</sub>	16.00-25	16.00-25	66	80	15,300	11		
16	491	180-300	27	34	41		CABLE	POSITIVE	102	11	16	58	286	47	53	44	354	123	86	48 x 102	58	213 <sup>1</sup> / <sub>2</sub>	16.00-25	18.00-25	66	80	16,500	12		
17 CURTIS-WRIGHT	CWT-8	75	8	10.5	13.3		CABLE	POSITIVE ROLL OUT	94.8	11	13.5	54	264	45	55	40	60	338	112	93	40 x 92	47	201.8	14.00-21	16.00-21	62	71	13,500	13	
18	CWT-10	100	10	13.5	18		CABLE	POSITIVE ROLL OUT	112	18.5	64	300	41	59	40	60	400	130	119	51 1/2 x 108	64	240.8	20.5-25	26.5-25	68	76	25,400	14		
19	CWT-15	150	15	20	21		CABLE	POSITIVE ROLL OUT	124	20	74	359	42	58	41	59	456	141	134	69 x 120	62	277.5	26.5-25	29.5-29	77	87	34,800	15		
20	CWT-20	155+	20	27	28		CABLE	POSITIVE ROLL OUT	120	22.5	79	378	47	53	45	55	435	143	121	65 x 120	86	303	24.0-29	27.0-33	81	86	37,400	16		
21	CWT-25	190+	26	33	36.5		CABLE	POSITIVE ROLL OUT	120	23.5	112	424	47	53	45	55	470	143	147	75	299	29.5-29	29.5-29	80	91	51,000	21			
22	CWT-30	200+	30	39	42		CABLE	POSITIVE ROLL OUT	120	20	110	433	47	53	45	55	490	144	146	78	315	29.5-29	33.5-33	80	91	55,400	22			
23 INTERNATIONAL	45-55	100-159	10.3	14	18.8		CABLE	Positive Forward	108	Net limited	31	73	300				44	56	388	131	102	58 x 108	49	224	16.00-25	21.00-25	67.3	86	24,550	23
24	45-85	160+	16	20	27.5		CABLE	Positive Forward	114	Net limited	37	82.3	396				44	56	434	138	117	72 7/8 x 114	66	266	21.00-25	24.00-29	78	90.8	34,425	24
25 LE TOURNEAU-WESTINGHOUSE	BT	150+ C Tourn-Tractor only	21	28	32.5		CABLE	POSITIVE FORWARD	120	20	20	80	442	49	51	43	57	482	140	128	60 x 120	63	311	23.5-29	29.5-29	96	94	39,830	25	
26	CE	12.2	18	20			CABLE	POSITIVE FORWARD	114	16	73	312	-	-	-	-	399	136	116	60 x 114	47	311	16.00-20	21.00-25	56	92	25,300	26		
27	CLE	19.2	27	20			CABLE	POSITIVE FORWARD	120	18	78	411	-	-	-	-	453	140	128	60 x 120	63	286	23.5-25	24.00-25	82	96	32,600	27		
28	CT	90+	14	20	22		CABLE	POSITIVE FORWARD	114	24	20	72	324	47	53	43	57	395	136	126	59 x 114	47	253	16.00-25	25.5-25	83	83	25,350	28	
29	DT	70+	8.3	11.5	14		CABLE	POSITIVE FORWARD	102	24	20	60	310	45	55	46	54	347	123	100	40 x 102	45	201	16.00-20	16.00-20	66	80	15,900	29	
30 M.R.S.	190HW	340	33	41.5	50	Hyd	FORCED ROLL OUT	132	20	17	95	468	50	50	45	55	492	154.5	168	132 x 150	78	300	29.5-29	37.5-33	84%	101%	54,500	30		
31	200HW	420	38	46.5	52.5	Hyd	FORCED ROLL OUT	132	20	17	95	480	50	50	45	55	498	154.5	168	132 x 150	90	305	33.5-33	37.5-33	88%	101%	68,500	31		
32	250HW-A	480	43	53	61	Hyd	FORCED ROLL OUT	132	16	24.5	95	492	50	50	45	55	516	154.5	168	132 x 168	89	324	33.5-33	37.5-33	88%	101%	74,500	32		
33	190HC	340	45	53.5	34	Hyd	FORCED ROLL OUT	132	20	17	95	468	50	50	45	55	492	154.5	168	132 x 150	106	300	29.5-29	37.5-33	84%	101%	66,000	33		
34	250HW-B	480	48	58	69	Hyd	FORCED ROLL OUT	132	16	24.5	95	492	50	50	45	55	516	154.5	168	132 x 168	100	324	33.5-33	37.5-33	88%	101%	77,500	34		
35	200HC	420	50	58.5	36	Hyd	FORCED ROLL OUT	132	20	17	95	480	50	50	45	55	492	154.5	168	132 x 150	118	300	29.5-29	37.5-33	84%	101%	67,000	35		
36	250HC	480	55	65	40.5	Hyd	FORCED ROLL OUT	132	16	24.5	95	492	50	50	45	55	516	154.5	168	132 x 168	116	324	33.5-33	37.5-33	88%	101%	73,500	36		

Allis-Chalmers Mfg. Co., Construction Machinery Div., Box 512, Milwaukee, Wis.  
 Allied Tractor Equipment Co., 2917 E. Marginal Way, Seattle 4, Wash.  
 Be-Ge Mfg. Co., P.O. Box 67, Gilroy, Calif.  
 Caterpillar Tractor Co., Peoria, Ill.

Curtis-Wright Corporation, South Bend Division, South Bend, Indiana  
 International Harvester Co., 180 N. Michigan Ave., Chicago, Ill.  
 LeTourneau-Westinghouse Co., Peoria, Ill.  
 M.R.S. Mfg. Co., Flora, Miss.

## SELF-PROPELLED SCRAPERS

MAKE AND MODEL	GENERAL						PRIME MOVER										MAXIMUM TRAVEL SPEEDS									Supply Method	Brakes, Sq. ft. of Contact	Circle Size, In.	Oil in Crankcase, Qts.	Cylinder/Port/Capacity/Obs.	Final Test Capacity, Gal.			
	Stock Capacity, Yes	Rated Capacity, Yes	Tons, Capacity	Wheels or Ship Tim., In.	Steering Control, Type	Engines, Model	MAXIMUM TRAVEL SPEEDS									No. of Cylinders	Rated RPM	Rated Horsepower	No. of Engines	Engine Model	Wheels, Model	Wheels, Capacity, in.	Wheels, Capacity, in.											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				
ALLIS-CHALMERS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				
1 TS-160	0.5	11.0	3	297	Hyd	A-C	TDS-516	155	2,200	6	516	3.1	5.0	8.5	13.2	25.4	3.1	3.5	7.2	1,230	13	17	44	84	100	1230	17	33	60	150				
2 TS-260	12.5	17	22	371	Hyd	A-C	16,000	230	2,000	6	843.3	2.7	5.3	10.2	17.7	27.9	3.5	4.1	8.0	1,400	17	33	94	130	150	1230	17	33	94	130				
3 TS-360	22.3	30	34	428	Hyd	A-C	21,000	340	2,000	6	843.3	3	5.9	10.5	18.5	26.3	3.1	3.5	7.2	1,230	13	17	44	84	100	1230	17	33	94	130				
CATERPILLAR	4	619C (Direct Drive)	14	18	21	360	CABLE	CAT.	619C	280	1,900	4	595.5	3.0	6.1	9.1	13.6	20.2	(a)	3.5	7.2	G10 <sup>(a)</sup>	16	25	88	90	90	1230	17	33	94	130		
5	619C (Power Shift)	14	18	21	360	CABLE	CAT.	619C	280	1,900	4	595.5	3.0	6.1	9.1	13.6	20.2	-	5.5	7.2	G10 <sup>(a)</sup>	16	25	88	90	90	1230	17	33	94	130			
6	621T-470	15.5	27	29.25	432	CABLE	CAT.	337-H	345	2,000	6	805	2.6	5.0	8.1	13.8	22.6	3.3	3.5	7.2	G10 <sup>(a)</sup>	16	30	102	115	115	1230	17	33	94	130			
7	631A (Power Shift)	21	26	31.5	432	CABLE	CAT.	D343	420	1,900	6	803	5.5	12.5	31.2	-	-	6.0	7.2	740 <sup>(a)</sup>	16	30	102	115	115	1230	17	33	94	130				
8	620B-456	19.5	27	29.25	456	CABLE	CAT.	D337-H	345	2,000	6	805	3.2	6.1	10.0	17.0	27.9	4.1	4.1	740 <sup>(a)</sup>	16	30	102	115	115	1230	17	33	94	130				
9	620B-462	21	34	36.0	456	CABLE	CAT.	D337-H	345	2,000	6	805	3.2	6.1	10.0	17.0	27.9	4.1	4.1	740 <sup>(a)</sup>	16	30	102	115	115	1230	17	33	94	130				
10	620A-462	27	35	40.5	466	CABLE	CAT.	D343	420	1,900	6	803	7.3	16.6	41.5	-	-	8.0	7.2	740 <sup>(a)</sup>	16	30	102	115	115	1230	17	33	94	130				
MICHIGAN (Clark Equip. Co.)	11	3.6	12.5	19	340	HYDRAULIC	Comm <sup>(a)</sup>	C-175-81	182	2,200	6	464	6	11.5	21	31.4	-	-	Same as Forward	1,120	-	28	40	65	1230	17	33	94	130					
12	210	14	19	22.5	404	HYDRAULIC	Comm <sup>(a)</sup>	NTO-6-81	262	2,100	6	743	4.8	9.1	17.4	33.4	-	Same as Forward	1,120	-	36	52	110	1230	17	33	94	130						
13	310	26	32	35	467	HYDRAULIC	GM	12V-71	430	2,100	12	851	3.9	8.3	15	31.2	-	Same as Forward	1,076	-	41	66	160	1230	17	33	94	130						
CURTIS-WRIGHT	14	8.2	10.3	13	318	CABLE	GM	4-71	148	2,100	4	286	2.9	5.6	10.9	19	25.3	2.9	3.5	7.2	ELECTRIC	960	13	12	28	55	55	1230	17	33	94	130		
15	CW-215	15	21	21	397	CABLE	GM	HRS-6	240	1,800	6	743	3.0	5.1	8.7	15.1	23.8	4.0	4.0	7.2	1,600	17	27	44	76	76	1230	17	33	94	130			
16	CW-215	29	27	31	444	CABLE	GM	NRT-6	300	2,100	6	743	4.0	6.7	11.4	19.9	31.2	5.2	5.2	7.2	1,600	15	17	27	68	68	1230	17	33	94	130			
17	CW-226	20	27	31	438	CABLE	GM	6-110-T	360	2,000	6	600	5.7	11.5	23.0	34.4	-	6.7	7.2	1,600	17	42	112	120	120	1230	17	33	94	130				
18	CW-226	26	36	39	456	CABLE	GM	12V-71	430	2,100	12	851	6.0	12.4	24.1	36.0	-	7.0	7.2	1,772	-	36	140	140	140	1230	17	33	94	130				
EUCLID	29	S-7	7	9	10.5	336	HYDRAULIC	GM	471	2100	4	286	4.2	8.2	16	24.5	(TC)	4.3-5.7	7.2	420 <sup>(a)</sup>	15	36.1	54	54	54	1230	17	33	94	130				
31	S-12	12	17	20	374	HYDRAULIC	GM	6-71	227	2,100	6	426	2.2	4.3	8.3	14.5	22.7	2.2	2.2	7.2	530 <sup>(a)</sup>	15	23	57	62	62	1230	17	33	94	130			
32	S-33-12	12	17	20	396	HYDRAULIC	GM	6-71	227	2,100	6	426	2.7	5.3	10.2	17.0	28	3.5	3.5	7.2	530 <sup>(a)</sup>	15	23	57	62	62	1230	17	33	94	130			
33	S-33-18	18	25	27.5	496	HYDRAULIC	GM	NHRS-6	320	2,100	6	743	4.8-9.8	12.6	17.0	23.5	36.6	41.7	3.6	44	60	154	154	154	1230	17	33	94	130					
34	S-18	21	30	35	436	HYDRAULIC	GM	6-110	336	2,000	6	600	3.3	8.2	16.4	24.5	(TC)	3.2-4.8	7.2	1,100 <sup>(a)</sup>	-	40	77	178	178	1230	17	33	94	130				
35	S-24	24	32	36	444	HYDRAULIC	GM	12V-71	432	2,100	12	852	4.5	9.5	13.9	18.5	27.9	-	-	1,100 <sup>(a)</sup>	-	36	90	200	200	1230	17	33	94	130				
36	S-36	40	52	62.5	534	HYDRAULIC	GM	6-71	227	2,100	6	426	5.5	11.2	22.5	33.5	-	-	1,100 <sup>(a)</sup>	-	36	124	175	175	1230	17	33	94	130					
37	T-14 (G)(e)	14	20	23.5	398	HYDRAULIC	GM	6-71	227	2,100	6	426	4.1	8.2	16.0	22.2	-	-	1,100 <sup>(a)</sup>	-	40	77	178	178	1230	17	33	94	130					
38	T-34 (G)(e)	24	32	40	444	HYDRAULIC	GM	6-71	227	2,100	6	426	6.2	11.9	27.3	-	(T.C.)	1,100 <sup>(a)</sup>	20	77	178	178	178	1230	17	33	94	130						
INTERNATIONAL HARVESTER	39	TS-55	10.3	14	21	496	CABLE	Comm	HR-6-81	175	1,800	6	743	2.8	5.2	8.8	14.2	24.1	2.8	3.5	7.2	ELECTRIC	1,250	17	28	40	80	80	1230	17	33	94	130	
40	TS-75	15	20	27.5	559	CABLE	Comm	NTO-6-81	282	2,100	6	743	2.7	4.5	7.8	14.0	23.4	2.3	3.5	7.2	ELECTRIC	1,400	17	28	40	105	105	1230	17	33	94	130		
41	TS-205	24	34	36	483	CABLE	HL	DT-817	375	2,100	6	817	4.0	9.1	18.2	31.1	(T.C.)	-	-	1,020	-	32	80	160	160	1230	17	33	94	130				
42	TS-205	24	34	36	483	CABLE	HL	DT-817	375	2,100	12	851	4.0	9.1	18.2	31.1	(T.C.)	-	-	1,020	-	32	80	160	160	1230	17	33	94	130				
43	TS-205	14	18	21	398	CABLE	HL	NT-288-C1	380	2,100	6	743	1.2-2.8	2.9	4.2	4.7	5.4	1.7-1	2.3-2.8	1,100 <sup>(a)</sup>	-	15	16	40	40	1230	17	33	94	130				
44	TS-200HW	33	41.5	50	468	CABLE	Comm	NT-8-380-C1	380	2,500	8	950	1.2-2.5	3.3	4.6	6.5	8.0	0.8 <sup>(a)</sup>	1.9-2.4	1,100 <sup>(a)</sup>	-	15	16	40	40	1230	17	33	94	130				
45	TS-200HW	36	46.5	52.5	468	CABLE	Comm	VT-12-560-C1	580	2,100	12	7170	1.2-2.5	3.3	4.6	6.5	8.0	0.8 <sup>(a)</sup>	2.47	1,100 <sup>(a)</sup>	-	15	16	40	40	1230	17	33	94	130				
46	TS-250-A	43	53	61	492	CABLE	Comm	VT-480-C1	650	2,100	12	7170	1.2-2.5	3.4	4.7	6.6	8.0	0.8 <sup>(a)</sup>	2.47	1,100 <sup>(a)</sup>	-	15	16	40	40	1230	17	33	94	130				
47	TS-250-B	48	58	69	492	CABLE	Comm	VT-458-C1	650	2,100	12	7170	1.2-2.5	3.4	4.7	6.6	8.0	0.8 <sup>(a)</sup>	2.47	1,100 <sup>(a)</sup>	-	15	16	40	40	1230	17	33	94	130				
48	TS-250H (G)(a)	33	41.5	50	468	CABLE	Comm	VT-8-380-C1	380	2,500	8	950	1.2-2.5	3.3	4.6	6.5	8.0	0.8 <sup>(a)</sup>	2.47	1,100 <sup>(a)</sup>	-	15	16	40	40	1230	17	33	94	130				
49	TS-200HW (G)(a)	39	46.5	52.5	468	CABLE	Comm	VT-8-380-C1	380	2,500	8	950	1.2-2.5	3.3	4.6	6.5	8.0	0.8 <sup>(a)</sup>	2.47	1,100 <sup>(a)</sup>	-	15	16	40	40	1230	17	33	94	130				
50	TS-250H-A (G)(a)	43	53	61	492	CABLE	Comm	VT-12-560-C1	580	2,100	12	7170	1.2-2.5	3.3	4.6	6.5	8.0	0.8 <sup>(a)</sup>	2.47	1,100 <sup>(a)</sup>	-	15	16	40	40	1230	17	33	94	130				
51	TS-250H-B (G)(a)	48	58	69	492	CABLE	Comm	VT-12-560-C1	580	2,100	12	7170	1.2-2.5	3.3	4.6	6.5	8.0	0.8 <sup>(a)</sup>	2.47	1,100 <sup>(a)</sup>	-	15	16	40	40	1230	17	33	94	130				
52	SEAMAR-GUNNISON 686-6	8	6	7	300	Hyd	HL	666-D	90	2,400	6	282	Ten speeds forward, 1.5 to 20 mph.									2.6	Elec.	260	12	9	28	33	33	1230	17	33	94	130
53	SEAMAR-GUNNISON 686-6	5	6	7	294	Hyd	NML	W-5	80	2,000	4	336																						

• Two-Axis Trig

(a) 30.0 in 50.0 sec.

(b) Prime power only; both, double  
 (c) A combination with 206 MHz Gaussian MRC

(c) Available with 335-HP Cummins NFT  
(d) All-wheel drive

(d) All-wheel drive  
(e) Two Engines

(f) Top of Central page

(g) Front to rear.  
(i) Available with GM Engine.

- (i) Available with GM Engine
- (ii) Four engines.

(a) 13.0 in 6th gear.

(i) Available with 10-speed

- (n) Four-wheel-drive, Four-wheel-steer prime mover.
- (o) Prime movers compatible with 360-hp engines.

(a) Prime cover available with 360-hp. engine.  
(a) Available with Power Shift.

(2) Prime never available with 280-hp. engine.

(d) Prime mover available with 300 or 432-hp. eng.

(1) Prime movers available with 632-hp. engine.

# *Construction Methods* AND EQUIPMENT

## **Specs for Your Files...**

OVERALL DIMENSIONS															CABLE			
Model	Manf. No. of Cyl., Inc.	Max. Width of Cyl., In.	Max. Depth of Cyl., In.	Max. Depth of Support, Inc.	WEIGHT DISTRIBUTION										Excav. Cable, Gal.	Steel Lft. Cable, Kips.	Amm. Lft. Cable, Kips.	
					FORCED	FORCED	FORCED	FORCED	FORCED	FORCED	FORCED	FORCED	FORCED	FORCED				
971/2	93/8	18	16 5/8	18	377	120	117	53	96x325	232	18.0-25	18.0-25	72	72	30,000	1/2	3/4	1/2
116	83/4	21	419	119	53	116x45	252	28.5-25	18.0-25	53	72	70	44,000	1/2	1/2	1/2		
123	10	483	144	130	63	120x65	236	29.5-35	18.0-25	103	68	64,000	1/2	1/2	1/2	1/2		
112	16	432	120	124	53	100x51	269	25.5-29	25.5-29	70	70	47,000	55	45	1/2	1/2	3/4	
112	16	432	120	124	53	100x51	269	25.5-29	25.5-29	70	70	40,000	65	55	1/2	1/2	3/4	
124	20	141	137	53	120x65	307	29.5-29	29.5-29	68	68	59,000	67	53	40	1/2	1/2	3/4	
124	20	141	140	66 1/2	53	120x65	307	29.5-35	29.5-35	65	65	60,700	70	54	40	1/2	1/2	3/4
124	20	526	141	136	58	120x65	282 3/8	14.0-26	25.5-29	68	68	58,700	42	35	37.5	40.5	1/2	3/4
124	20	526	141	147	66 1/2	120x60	294	14.0-26	25.5-29	68	68	58,700	42	35	37.5	40.5	1/2	3/4
130	22	533	154	150	64	126x70	311	14.0-24	25.5-35	68	68	60,500	45	41	37.0	51.5	1/2	1/4
130	22	576	154	158	64	126x70	319	16.0-25	25.5-35	68	68	79,000	41 1/2	39	37	51	1/2	7/8
102	11	18	FORWARD POSITION		382.5	119.5	116	52	102x40	233	23.5-25	23.5-25	63	72	34,450	68	32	51
114	16	23	FORWARD POSITION	410	135	134	49	114x42	278	25.5-29	25.5-29	68	68	40,500	68	32	52	
120	17	29	526	144	135	60	120x65	325 1/2	29.5-35	29.5-35	996	99 1/2	79,600	68	32	53		
67	15	21	POSITIVE ROLL OUT		358	162	104	47	216	18.0-25	18.0-25	76	66	32,500	70	30	56	
120	16	20	469	120	61	205	29.5-25	29.5-25	92	92	56,000	66	34	54	44	9/15	9/16	
120	18	22 1/2	504	142	119	64 1/2	268	14.0-24	29.5-29	94	92	64,000	46	34	42	45	1/2	3/4
120	19	24	519	143	131	64 1/2	297	27.3-33	27.3-33	102	90	69,000	69	31	51	45	9/15	9/16
120	20	29	574	143	168	75	347	33.5-33	33.5-33	102	91	85,000	66	34	54	46	9/15	9/16
84	10 1/2	20	POSITIVE ROLL OUT		358	96	101	101	96x62	214	10.0-25	10.0-25	73	73	26,500	69	31	55
118	14	27	423	134	117	102x14 1/2	261	24.0-25	24.0-25	88	88 1/2	45,100	66	34	53	47	-	-
118	15	29	408	134	112	102x14 1/2	245	21.0-25	21.0-25	75.5	95.5	45,200	39	36	39.5	45	-	-
124	15	29	546	139	105	110x17	277	14.0-25	29.5-29	75.5	95.5	56,000	41	33.5	42	44	-	-
124	13 1/2	24	494	141	132	120x136	303	27.0-33	27.0-33	91	91	68,000	66	34	52	48	-	-
125	13 1/2	24	508	140%	135 1/2	136x126	307	27.0-33	27.0-33	91	91	70,000	57	43	58	50	-	-
136	14	27	616%	525%	-	345	14.0-25	37.5-33	-	-	94,000	42	30	41	49	-	-	
171/2	14	27	477	32	117	-	280	24.0-25	24.0-25	85	85.5	51,300	56	44	50	50	-	-
124	13 1/2	26 1/2	545	141	132	136x120	312	27.0-33	27.0-33	91	91	88,000	55	45	48	52	-	-
109	Uni.	19	POSITIVE ROLL OUT		408	132	107	107	233	26.5-25	26.5-25	75.3	87	40,005	65	35	56	
113	Uni.	21 1/2	472	138	117	279	25.5-29	25.5-29	82	91	54,305	65	35	56	44	9/15	9/16	
122	16	21	504	144	149	348	33.5-33	33.5-33	90.0	80.6	77,100	62.5	37.5	51	49	1/2	1 1/4	
122	16	21	609	144	149	457	14.0-25	27.0-33	98	94	75,500	57	38	37	49	1/2	1 1/4	
121	16	19	540	140	153 <sup>(a)</sup>	90x120	320 <sup>(a)</sup>	75° high x 30° wide	118	118	74,400	-	-	-	-	Electric Rack & Pinion		
120	16	19	905	144	164 <sup>(a)</sup>	140x120	714 <sup>(a)</sup>	75° high x 30° wide	114	114	143,000	-	-	-	-	Electric Rack & Pinion		
150	30	26	1,242	176	224 <sup>(a)</sup>	225x150	981 <sup>(a)</sup>	89° high x 40° wide	130	136	283,500	-	-	-	-	Electric Rack & Pinion		
84	UNLIMITED	26	FORWARD POSITION		338	96	109	56 1/2	84x29	189	18.0-25	18.0-25	74.5	74.5	22,000	68	21	58
84	24	447	136	121	47	84x29	189	18.0-25	18.0-25	74.5	74.5	23,070	68	21	58			
114	21	492	136	121	55 1/2	84x29	268	24.0-25	24.0-25	82	82	45,300	68	34	53			
114	21	507	136	121	55 1/2	84x29	120.0-25	24.0-25	82	82	49,000	49	35	50				
120	26	532	140	145	63	67x120	322	27.0-33	27.0-33	98	98	69,400	67	33	53			
102	9	-	POSITIVE ROLL OUT		282	129%	112	-	-	16.0-24	16.0-21	77	-	38,055	F-37	32	26	
102	9	-	300	143%	112	-	-	-	-	18.0-25	18.0-25	74	-	36,422	F-37	32	26	
120	9	-	300	143%	112	-	-	-	-	26.5-25	18.0-25	76	-	43,005	F-36	33	22	
132	29	17	716	154%	168	78	132x150	431	14.0-20	29.5-29	89	101.75	114,500	50	30	45		
132	29	17	742	154%	168	88	132x150	449	14.0-25	37.5-33	89	101.75	120,000	50	30	45		
132	29	17	742	154%	168	88	132x150	470	14.0-25	33.5-33	89	101.75	140,340	50	30	45		
132	16	24 1/2	762	154%	168	100	132x168	470	14.0-25	33.5-33	89	101.75	143,840	50	30	45		
132	16	24 1/2	734	154%	168	78	132x150	431	14.0-20	29.5-29	101.75	101.75	114,500	50	30	45		
132	29	17	741	156%	168	90	132x150	431	14.0-20	33.5-33	101.75	101.75	132,570	65	14	77		
132	29	17	770	156%	168	89	132x168	460	14.0-25	33.5-33	101.75	101.75	152,600	90	10	75		
132	16	24 1/2	770	156%	168	100	132x168	460	14.0-25	33.5-33	101.75	101.75	152,600	90	10	75		
132	16	24 1/2	370	99%	83	42	84x76	233	10.0-25	11.25-26	64	71	17,200	75	25	60		
132	16	24 1/2	359	99%	83	42	84x76	260	10.0-25	12.25-29	64	71	17,200	75	25	60		

Allis-Chalmers Mfg. Co., Construction Machinery Div., Milwaukee 1, Wis.  
Caterpillar Tractor Co., Peoria, Ill.  
Clark Equipment Co., Construction Machinery Div., Benton Harbor 21, Mich.  
Curtiss-Wright Corp., South Bend Div., South Bend, Ind.  
Euclid Div., General Motors Corp., Hudson, Ohio

International-Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.  
R. G. LeTourneau Inc., Longview, Tex.  
LeTourneau-Westinghouse Div., Westinghouse Air Brake Co., Pueblo, Colo.  
M-R-S Mfg. Co., Flora, Miss.  
Sennar-Dominion, 13300 W. Common Ave., Milwaukee 18, Wis.

## **PORTABLE COMPRESSORS**

With Air Delivery Ratings Over 100 CFM

With Air Delivery Ratings Over 100 CFM at 100 PSI



## **PORTABLE COMPRESSORS**

With Air Delivery Ratings Over 100 CFM at 100 PSI

## Specs for Your Files...

## Construction Methods AND EQUIPMENT

Col. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39			
JDV																																									
27 RP125	125	2	(1)	(1)	2,000	6	125	100	1	26	Cont.	FA-1624	50	-	-	-	-	20	12(a)	62	63	2,710	2,910	-	-	-	-	-	-	-	-	-	-	-	27						
28 RP250	250	2	(1)	(1)	1,750	9	125	100	1	60	Herc.	GD339	6	89	40	150	72	74	6,300	4,710	150	72	74	4,450	4,910	-	-	-	-	-	-	-	-	-	-	28					
29 RP365	365	2	(1)	(1)	1,750	13	125	100	1	74	-	-	GM	4-71	4	122	60	-	-	-	-	118	80	76	5,680	6,340	-	-	-	-	-	-	-	-	-	29					
30 RP600	600	2	(1)	(1)	1,750	16	125	100	1	120	-	-	GM	6-71	6	190	110	-	-	-	-	140	72	81	8,100	9,200	-	-	-	-	-	-	-	-	-	30					
31 RP900	900	2	(1)	(1)	1,800	22	125	100	1	180	-	-	Cumm.	NRTO	6	300	150	-	-	-	-	150	86	86	10,700	12,260	-	-	-	-	-	-	-	-	-	31					
LEROI \																																									
32 125G1	125	Recip.	1	5 1/2x4 1/2	-	1,30	7	100	1	Water	LeRoi	D226	4	41	-	-	-	15	114(a)	59	58	1,940	2,105	-	-	-	-	-	-	-	-	-	-	-	-	-	32				
33 128RG2	125	Ratio.	2	80	(1)	1,600	22	100	1	Oil	LeRoi	D226	4	53	-	-	-	19.5	129	129	68%	2,190	2,390	-	-	-	-	-	-	-	-	-	-	-	-	33					
34 128RG2U	125	Ratio.	2	80	(1)	1,600	22	100	1	Oil	LeRoi	D226	4	53	-	-	-	19.5	74	50	33	1,800	2,000	-	-	-	-	-	-	-	-	-	-	-	34						
35 128RD2	125	Ratio.	2	80	(1)	1,600	2.7	100	1	Water	LeRoi	D226	4	42	-	-	-	17	127	61 1/2	63	129	59%	68%	2,600	2,821	-	-	-	-	-	-	-	-	-	-	35				
36 125 Tractor (c)	125	Recip.	1	5 1/2x4 1/2	(1)	1,350	4	100	1	Oil	LeRoi	D226	4	42	-	-	-	10	54	-	-	-	-	-	125	88	80	7,010	7,640	-	-	-	-	-	-	-	-	36			
37 358RD2	365	Ratio.	2	120	(1)	1,000	5.5	100	1	Oil	LeRoi	D226	4	42	-	-	-	10	54	-	-	-	-	-	150	90	80	7,730	8,740	-	-	-	-	-	-	-	-	37			
38 600RD2	600	Ratio.	2	(1)	1,800	15	100	1	Oil	LeRoi	D226	4	120	-	-	-	-	-	-	-	-	-	-	-	174	96	96	14,700	16,615	-	-	-	-	-	-	-	-	38			
39 1200RD2	1200	Ratio.	2	(2)	1,800	24	100	2	Oil	LeRoi	D226	4	240	-	-	-	-	-	-	-	-	-	-	-	174	96	96	14,700	16,615	-	-	-	-	-	-	-	-	39			
SCHRAMM																																									
40 P-125	125	Recip.	1	4 1/2x4 1/2(3)	-	1,370	3.8	200	100	1	Bath.	Water	9	Schramm	COH	3	41	Schramm	DOUH	3	41	25	115(a)	58	57	2,270	2,445	115	58	57	2,370	2,545	-	-	-	-	-	-	-	-	40
41 1,25 PNEUMATRACTOR	125	Recip.	1	4 1/2x4 1/2(3)	-	1,370	3.8	200	100	1	Bath.	Water	9	Schramm	COH	3	41	Schramm	DOUH	3	41	25	115(a)	58	57	2,270	2,445	115	58	57	2,370	2,545	-	-	-	-	-	-	-	-	41
42 U-250	225	Recip.	1	4 1/2x4 1/2(6)	-	1,350	7	200	100	2	WATER	BATH	9	Schramm	GOND	6	85	IHC	DOUH	3	41	25	116	63	59	3,850	3,825	116	63	59	3,750	3,925	-	-	-	-	-	-	-	-	42
43 U-315	315	Recip.	1	5 x 6 (a)	-	1,180	11	200	100	2	OIL	BATH	15	-	-	-	-	IHC	UD-16A	4	88	36.5	129	65	67	4,700	4,815	127	65	67	5,700	6,190	-	-	-	-	-	-	-	-	43
44 U-600-TC	600	Recip.	1	5 5/8 x 6 (b)	-	1,200	19	200	100	1	OIL	BATH	15	-	-	-	-	IHC	UDT-16	6	116	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44			
45 GORDON SMITH	125	Recip.	1	4 5/8x5 1/4	-	1,200	4.5	150	100	1	OIL	Bath	5	Herc.	RXC	3	57	-	-	-	-	20	115(a)	62	65	2,100	2,150	-	-	-	-	-	-	-	-	-	45				
46 WORTHINGTON	125		2	(1)	1,075	2.9	125	100-110	1	30	Cont.	G-193	4	55	Cont.	G-193	4	49	28.6	135	63	67	2,520	2,620	135	63	67	2,660	2,780	-	-	-	-	-	-	-	-	46			
47	125	ROTARY	1	-	-	1,000	2.9	125	100-110	1	30	Cont.	G-193	4	55	Cont.	G-193	4	49	28.6	135	63	67	2,520	2,420	135	63	67	2,460	2,580	-	-	-	-	-	-	-	-	47		
48	250	1	-	-	1,000	1.63	125	100-110	1	64	Cont.	M-363	6	85	GM	4-53	4	93	41.5	106	76	67	67	4,160	4,580	106	76	67	4,300	4,730	-	-	-	-	-	-	-	-	48		
49	365	2	(1)	(1)	1,000	1.63	125	100-110	1	68	-	-	-	Cum.	NH-400	4	120	50	-	-	-	-	-	139	84	72	7,140	7,625	-	-	-	-	-	-	-	-	49				
50	600	2	(1)	(1)	1,000	1.45	125	100-110	1	128	-	-	-	(GM)	NHTC-6-71	6	180	100	-	-	-	-	-	154	93	82	8,080	9,738	-	-	-	-	-	-	-	-	50				
51	900	2	(1)	(2)	1,000	21.6	125	100-110	1	180	-	-	-	Cum.	6-61	6	300	160	-	-	-	-	-	177	105	82	12,250	13,800	-	-	-	-	-	-	-	-	51				

All specifications at Sea Level.

(a) Dimensions on Two-Wheel Trailer

(b) Multi-stage

(c) Tractor-on-grouser combination

(d) Truck Mounted

(e) Available with 64-in. track

(f) " with 120 HP Cummins NHC 400 BL

(g) " Cummins NH 220-BL

Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N.Y.

Davey Compressor Co., 600 Franklin Ave., Kent, Ohio

Gardner-Denver Co., 100 Williamson St., Quincy, Ill.

Ingersoll-Rand Co., 11 Broadway, New York 4, N.Y.

Jager Machine Co., 550 W. Spring St., Columbus 16, Ohio

Joy Manufacturing Co., 900 Woodland Ave., Michigan City, Ind.

Leffel Div., Westinghouse Air Brake Co., Sidney, Ohio

Schamm, Inc., West Chester, Pa.

Gordon Smith & Co., 460 College St., Bowling Green, Ky.

Westinghouse Corp., Holyoke, Mass.

# Readers attest to the Editorial Quality of Construction Methods



H. D. Case, President  
Case Construction Corp., Mount Airy, Md.  
**CONSTRUCTION METHODS** subscriber since 1937  
—\$4 million of construction a year  
—Owns \$500,000 of equipment  
—6 key men subscribe to **CONSTRUCTION METHODS**

He says: "CONSTRUCTION METHODS has given me many a good idea, and helped solve many problems. I find it helpful in selecting equipment. I read the ads which are informative and helpful."



Americo Cardi, Partner  
Campanella and Cardi Construction Co.  
Hillsboro, Rhode Island. Subscriber since 1944  
—\$18 million of construction  
—Over 850 units of equipment worth \$6½ million  
—50 key men subscribe to **CONSTRUCTION METHODS**

He says: "Equipment and new methods covered by this magazine are very helpful. I like job stories which keep me up to date. I also read the ads to keep up with newest machinery and what they can do."



George D. Frazier, President  
Frazier-Davis Construction Co., St. Louis, Mo.  
**CONSTRUCTION METHODS** subscriber since 1939  
—\$25 million construction a year  
—300 units of equipment worth \$1.5 million  
—27 key men subscribe to **CONSTRUCTION METHODS**

He says: "This is an excellent magazine. Fine editorial coverage of how equipment is used on different projects are of special interest to me. Looking over the ads is also an important part of my reading."



C. F. Reagle, President  
C. F. Reagle Company, Circleville, Ohio  
**CONSTRUCTION METHODS** subscriber since 1939  
—\$17 million of construction a year  
—1,300 units of equipment worth \$6 million  
—85 key men subscribe to **CONSTRUCTION METHODS**

He says: "I look to **CONSTRUCTION METHODS** for items on new equipment and its use, new ideas and techniques used to whip problems. I always look at the ads for new products or applications that we can use."

The editorial quality of a publication is measured quite easily by the simple yardstick of whether or not it is read by the audience for which it is edited. A continuous increase in paid subscriptions for **CONSTRUCTION METHODS** magazine (49,600) attests to the value key men in construction place on it.

Here's what some of the industry's top men have to say about **CONSTRUCTION METHODS** — the only national construction monthly they pay to receive.



Nello L. Teer, Sr., Chairman of the Board  
**CONSTRUCTION METHODS** subscriber since 1919  
Nello L. Teer Company, Durham, North Carolina  
—Over \$25 million of construction a year  
—Over 2,500 units of equipment worth \$15 million  
—21 key men subscribe to **CONSTRUCTION METHODS**

He says: "I have learned many techniques many times from **CONSTRUCTION METHODS**. We read the ads carefully for different items. We have written to advertisers asking for information on equipment advertised."



W. T. Gilbert, President  
C. W. Blakeslee & Sons, New Haven, Conn.  
**CONSTRUCTION METHODS** subscriber since 1930  
—\$11 million of construction a year  
—475 units of equipment valued at \$3.8 million  
—33 key men subscribe to **CONSTRUCTION METHODS**

He says: "This outstanding magazine fills the gap between the technical material in engineering publications and advertisements on different equipment and materials. It combines the two by showing practical use of equipment and techniques on the job."



Lincoln A. Sollitt, President  
Sollitt Construction Company, Inc., South Bend, Indiana  
**CONSTRUCTION METHODS** subscriber since 1926  
—\$9 million of construction a year  
—Over 530 units of equipment valued at \$1.5 million  
—54 key men subscribe to **CONSTRUCTION METHODS**

He says: "CONSTRUCTION METHODS belongs on the 'must reading' list because of its excellent coverage of equipment news in advertisements and stories, and because of its valuable, practical 'how to do it' articles."



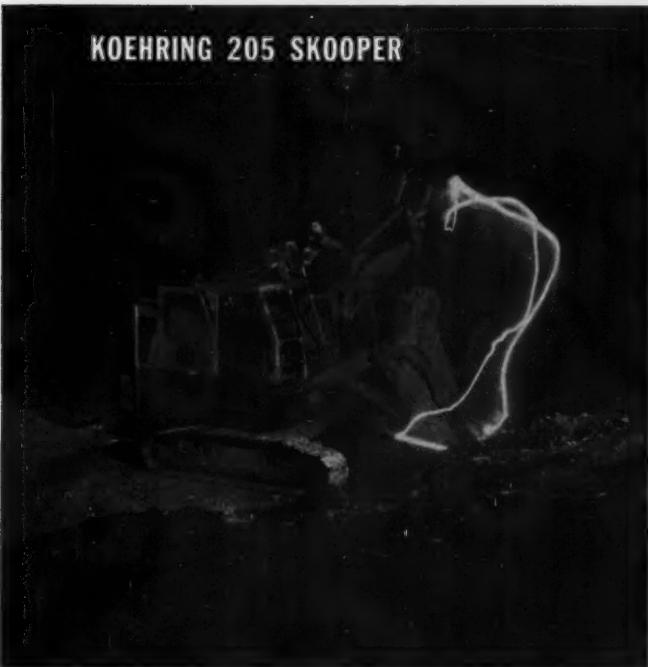
J. Warren Shoemaker, President  
Warren Brothers Roads Company, Cambridge, Mass.  
**CONSTRUCTION METHODS** subscriber since 1934  
—\$16 million plus construction a year  
—11,000 units of equipment valued at \$5.8 million  
—26 key men subscribe to **CONSTRUCTION METHODS**

He says: "CONSTRUCTION METHODS gives me many good ideas on equipment and techniques. Editorial items and advertisements are filed and I refer to them when looking for specific methods or equipment to do a job. I find ads as useful as the editorial."

The construction monthly read and preferred  
by America's important contractors!

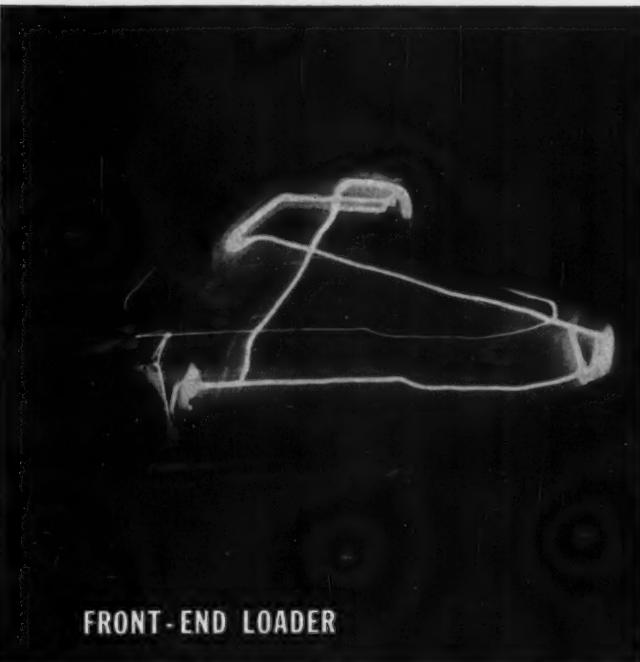
# "RIVERS OF LIGHT" SHOW HOW SKOOPER OUTPERFORMS FRONT-END LOADER

KOEHRING 205 SKOOPER



SKOOPER'S standstill loading creates a light pattern that's short and compact...not long and extended like the one for the loader!

FRONT-END LOADER



## Cycle Test Proves SKOOPER Best!

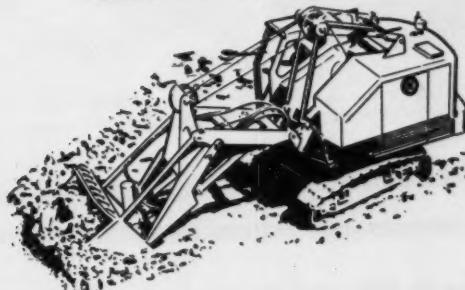
Shown here are actual time-exposure photographs of a Koehring 205 SKOOPER and a rubber-tired front-end loader of similar bucket capacity going through actual digging and dumping cycles under identical conditions. A light was attached to the bucket of each machine and the light pattern traced by each bucket was recorded by time exposure photography.

The light patterns show that with SKOOPER, all motion means work . . . there are no flying starts, no spinning tires, no churning crawlers, no waste drive-in, back-off motion . . . SKOOPER stays in one spot and really bails dirt, delivers big loading tonnages, using less horsepower with less maintenance!

See your Koehring distributor for complete details on the profit pattern that SKOOPER can produce for you!

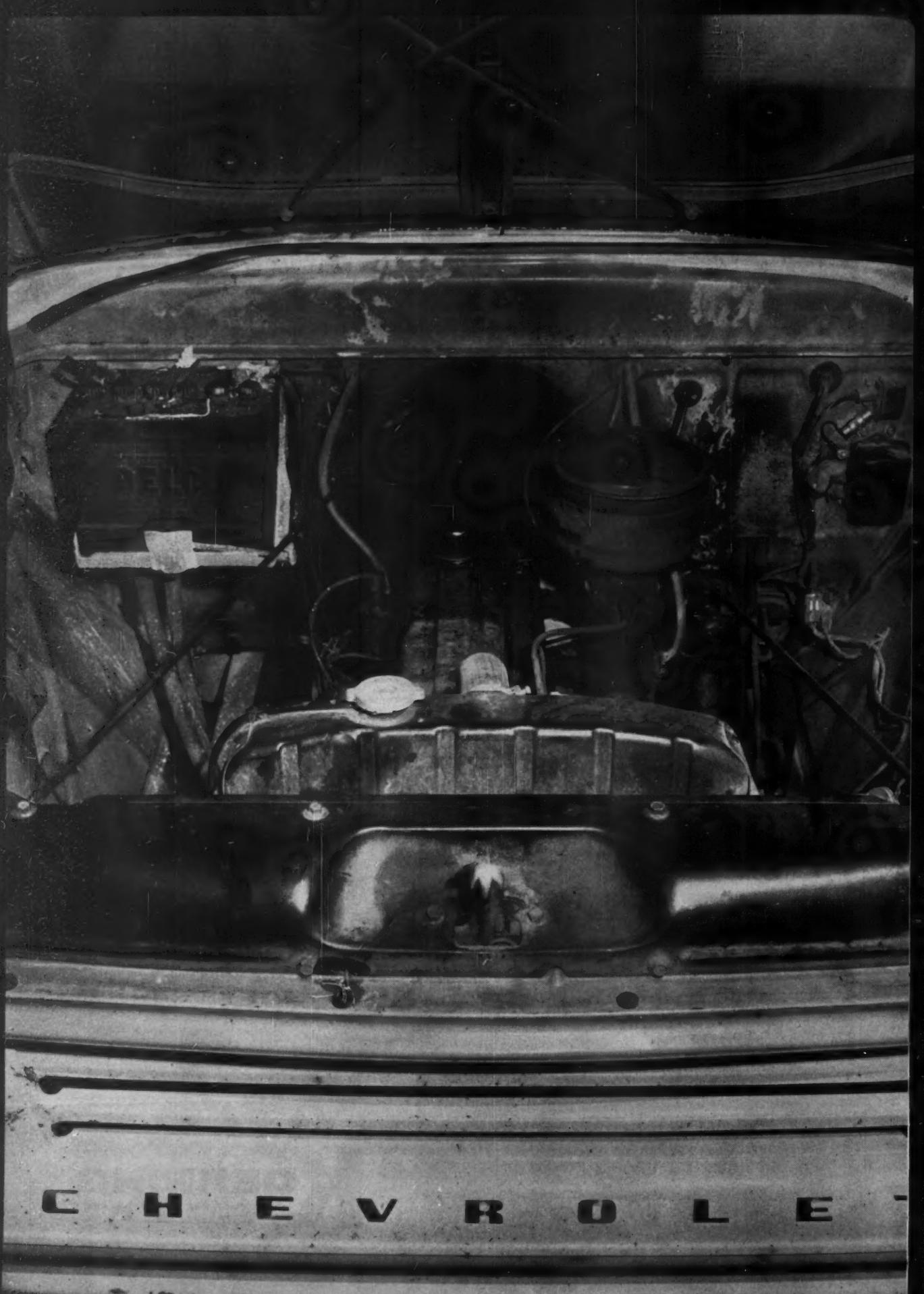
K-100

*There's Nothing Like it  
on Wheels or Tracks!*



**KOEHRING**  
DIVISION OF KOEHRING COMPANY  
Milwaukee 16, Wisconsin

Circle 167 on Reader Service Card



# OLD PRO

Chevrolet's famous Thriftmaster 6's—and if it looks a bit battle-scarred, there's a good reason! This one has just turned 230,000 miles, working for Earl McDaniel of Dallas Texas, on a hustling round-the-clock air mail delivery job. *And here's the stopper: this engine has never been overhauled. It has required only routine maintenance over all those miles.* That, you'll agree, is professional truck power at its dollar-saving best. That's the way it is with the most widely used engine in the business—Chevy's Thriftmaster 6!

Rarely does any truck engine—even a Chevy Thriftmaster 6—run up a performance record like this one. We point it out here merely as proof that the Thriftmaster 6 brings *staying power to spare* to any job it tackles. It's evidence that Chevrolet puts real *truck "horses"* under the hood—in a light-duty power plant that's built to outlast and outsave any other you can name.



*Hustling air mail from airports to town on a stop-watch schedule is a 24 hours a day, 7 days a week responsibility Earl McDaniel, U.S. Mail Contractor, shares with his '59 Chevy 1/2-ton panel. And, according to Mr. McDaniel, after 230,000 miles, the truck "still purrs like a kitten . . . hasn't had or needed an engine overhaul. The pan has never been off, the valves have never needed grinding."*

That truck engine on the opposite page is one of the Thriftmaster 6 provides the basic power for Chevy's conventional light-duty truck line. Standard in pickups, panels, light-duty stakes, delivery vans and the Suburban Carryall, it's the end product of many years of engineering refinement.

It provides economy-contoured camshaft and improved carburetion to give you extra power, extra miles from every gallon of gas. Also, there's a forged steel crankshaft, high quality steel and steel alloy valves, durable precision bearings, full pressure lubrication system, oil-bath air cleaner—all contributing to longer engine life and greater overall economy. This is the most experienced truck engine in the business, and it's ready to wade into your roughest work and keep you way ahead on fuel and maintenance expense. It'll pay you to check into it at your Chevrolet dealer's! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

## THRIFTMASTER 6 PERFORMANCE DATA

Gross Horsepower.....	135 @ 4000 rpm
Net Horsepower.....	115 @ 3600 rpm
Gross Torque, lb.-ft.....	217 @ 2000 rpm
Net Torque, lb.-ft.....	195 @ 2000 rpm
Piston Displacement.....	235.5 cubic inches
Bore and Stroke.....	3 $\frac{1}{16}$ " x 3 $\frac{1}{16}$ "
Compression Ratio.....	8.25 to 1

## 1961 CHEVROLET STURDI-BILT TRUCKS



Circle 169 on Reader Service Card

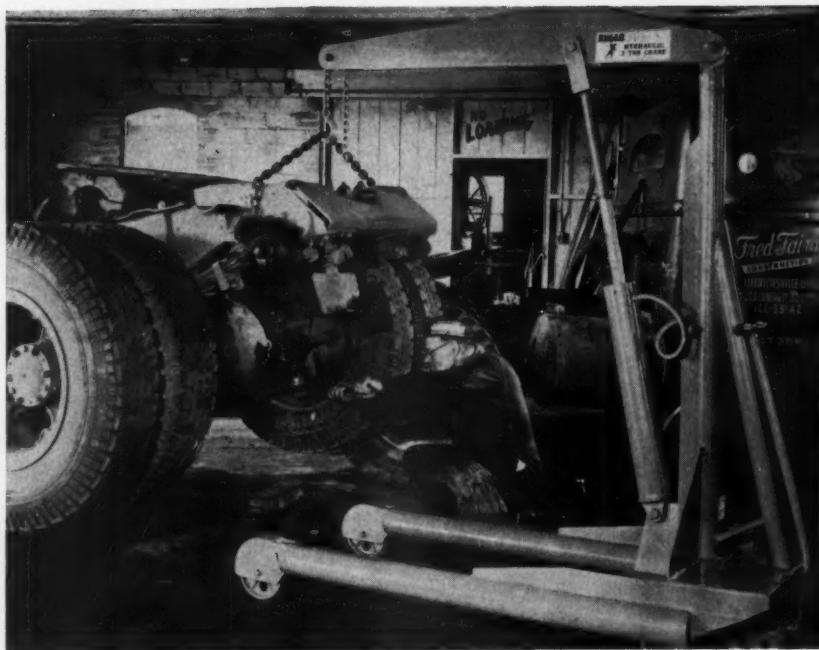
# Construction Equipment News

For more information on any item, circle the key number, found at the end of each item, on the READER SERVICE CARD just inside the back cover.

## Mobile Hydraulic Cranes Work In Shop, Field

Available in  $\frac{1}{4}$ ,  $\frac{1}{2}$ , 1, 2 (right), and 3-ton capacities, Ruger's line of cranes features double-action hydraulic hand pumps that never require more than 50 lb of pumping effort. One series of cranes has adjustable legs to accommodate wide loads. Another series permits the booms to swing 90 deg to either side. The outriggers on this type have swivel casters that can be positioned to the side or folded in an upright position. A third Ruger series has pedestal bases that allow the booms and masts to be transferred for use as floor, truck-mounted, or dock-mounted cranes.—Ruger Equipment, Inc., 615 West Fourth St., Uhrichsville, Ohio.

Circle 301 on Reader Service Card

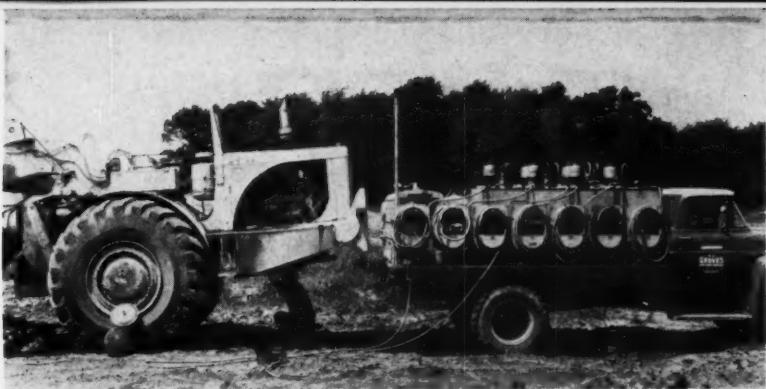


## Automatic Welder Rebuilds Worn Track Links

Victor's Model TLM-2 automatic track link welder has a single console power source enclosing two dc welding machines. Dual automatic wire feeders eliminate the bulkiness of welding heads. A combination multiple spindle roller and idler attachment accommodates four rollers or one idler and permits welding with both wire feeders. It can be positioned to rebuild both inside surfaces of the roller flanges without removing the roller. Other equipment includes mechanical chain hoist, an electric eye, and a mechanical vertical adjustment device. Features are compact electronic controls, including an electronic governor travel control, a simplified operator station, and special flux handling equipment. The unit is 53 ft long, 4 $\frac{1}{2}$  ft wide, and 9 $\frac{1}{2}$  ft high. The machinery weighs 7,050 lb, and the welding machine weighs 1,350 lb.

Circle 302 on Reader Service Card





### Handles On-Site Servicing

Supplying the necessary equipment for on-the-spot lube and maintenance jobs, this custom-built Graco convoy luber carries an air compressor and an air-powered pump and hose for oil, grease, fuel, and air.—Gray Co., Inc., 1076 Silbley St., N.E. Minneapolis 13, Minn.

*Circle 303 on Reader Service Card*



### Motorless Impact Wrench Gives 1,100 Blows a Minute

The Thor W-37 air impact wrench with a motorless oscillating mechanism has only one blade, which controls the direction of the blow. There is no rotor as such, but the power unit has a cylinder that oscillates to strike full engagement blows on every oscillation. The strength and frequency of blows are directly controllable from the trigger. The wrench weighs  $5\frac{1}{2}$  lb, measures  $6\frac{1}{2}$  in. long, and delivers 1,100 impact blows a minute. The W-37 has a  $\frac{1}{2}$ -in. square drive; Model W-37S has a  $\frac{7}{16}$ -in. hexagonal chuck spindle.—Thor Power Tool Co., Aurora, Ill.

*Circle 304 on Reader Service Card*



### Welder Rebuilds, Hardfaces Crusher Rolls in Position

The Crushermatic, a system that automatically rebuilds and hardfaces crusher rolls, mounts on the crusher over the crusher roll. Up to 20 lb of alloy wire an hour can be deposited. The Crushermatic consists of three separate units. A motorized carriage that rides a track is suspended over the roll. The carriage positions alloy wire for precise welding. An electronic control system provides proper sequencing for a variety of circumferential and transverse welding beads. The Crushermatic's third unit, a motor and gear reduction system with variable speed controls, turns the crusher roll at speeds suitable for automatic hardfacing or build-up. Alloy wire is delivered by a semi-automatic wire feeding unit through a flexible cable to the nozzle mounted on the motorized carriage. Once the arc is struck, uninterrupted welding is possible until the wire supply is exhausted.—Stoody Co., Whittier, Calif.

*Circle 305 on Reader Service Card*

**The GenTex Safety Hat** . . . your way of looking out for yourself on the job. With an impact resistance of better than 40 foot-pounds and a penetration resistance of less than  $\frac{1}{4}$ ", the GenTex is the hard hat with heart. So when someone up above shouts "Headache," let a GenTex Safety Hat do your talking. From the GenTex Corporation, 450 7th Ave., New York 1.

write for full details



**GENTEX® SAFETY HATS**

Circle 172 on Reader Service Card

## EQUIPMENT NEWS . . .

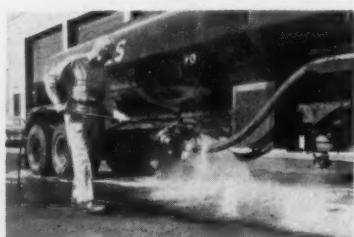
For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.



### Rust-Freeing Liquid Supplied in 4-Oz Container

A new penetrant, Rust Buster, comes in a 4-oz plastic squeeze bottle. It quickly loosens rusted bolts, screws, shafts, piping, and all types of frozen connections and assemblies. It features an extending spout that places the rust-freeing liquid on the desired spot.—Armitite Laboratories, 67th & Broad Streets, Los Angeles 1, Calif.

Circle 306 on Reader Service Card

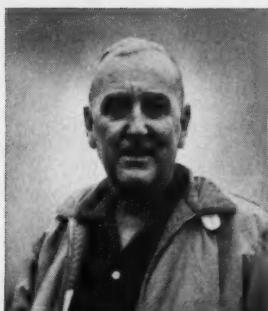


### Washer Cleans Equipment

The 500 Hydra-Clean wash unit combines hydraulic spray pressure up to five times the inbound air supply with only a small quantity of special Dirt-Tergent cleaning powder to thoroughly flush away dirt, grit, and grime. The non-corrosive pump can be used with any full-open drum from 15 to 55 gal. Included is a flexible 40-ft hose and insulated spray nozzle.—Gray Co., Inc., 1076 Sibley St. N.E., Minneapolis 13, Minn.

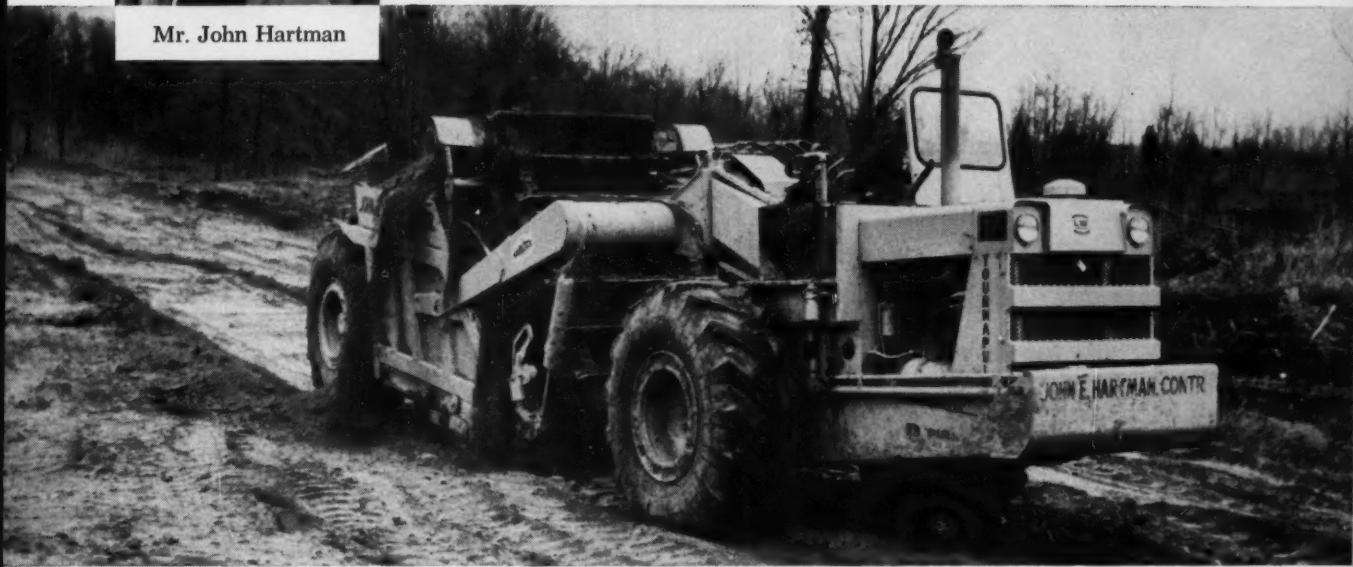
Circle 307 on Reader Service Card

## OWNER OF LW D 'PULL\*-HANCOCK REPORTS:



Mr. John Hartman

- longer work season
- reduced operating costs
- bigger profits



With your per-yard "take" no more than it was 10 to 15 years ago, it pays to switch to equipment that will increase efficiency *so much* that your per-yard cost is at bare minimum. John Hartman, Kirkwood, Mo., came up with a solution. Here's what he has to say about his new LeTourneau-Westinghouse D Tournapull® with 10-yd Hancock elevating scraper.

### Gain 35 work-days per year

"With this LW machine we increased efficiency over 30 per cent. First of all, it will work in conditions that used to shut us down. In December, for example, we operated the 'D' in mud and water 18 inches deep. It stayed muddy for a month... but we worked. In fact, the 'D's' traction, power, and maneuverability enables us to work about an extra 35 days a year!"

### "Never use a pusher"

"We never use a pusher with this D 'Pull-Hancock,'" continues contractor Hartman. "Instead of helping a scraper load, we assign the tractor to dozing so it's making money for us."

"And on this scraper, tires last twice as long. That's because regular scrapers often 'snake' back-and-forth

Building an artificial lake at a health and recreation resort near St. Louis, John Hartman's D 'Pull-Hancock gets heaped load of silty clay and loess. Exclusive electrically-driven elevator pulverizes earth and carries it up and into the bowl. You don't need a pusher to get heaped loads... The last half-yard is loaded as easily and quickly as the first. Positive ejection spreads full load in 5 to 10 seconds.

when they load. On the Hancock, this isn't necessary as the 'paddles' toss the dirt up onto the load. There's no skidding of wheels... no tearing-up the tires. We save  $\frac{1}{2}$  of our normal tire expenditure for the year, or \$800.00!" Mr. Hartman adds...

### "Drive to jobs"

"Another reason we like the 'D'-Hancock combination is that it works and travels fast. Only 8 feet wide and legal in weight, it can drive to jobs under its own power *on the highways*. It's safe, controls well!"

Let us show you how the 143-hp D 'Pull with 10-yd elevating scraper can help increase efficiency and profits on *your* jobs. Also available for the "D": conventional 9-yd LW scraper and LW 11-ton Rear-Dump. Ask for details.

\*Trademark DPH-2427-DCJ-1



**LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS**

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

Circle 173 on Reader Service Card



### In the first month, 265,720 yds

were moved by Halvorson's 7 B 'Pulls\*. 284,526 yds in the second month — working two 8-hr shifts a day. And, a month later, General Foreman Carl A. Storlie reported, "We are finishing in 3 weeks more, moving 1 million yards on schedule with our 7 LeTourneau-Westinghouse Model B Tournapulls!"

### Haul up grade all the way —

Working over 7,000-ft cycles, the B 'Pulls loaded in canyon-bottom, hauled 3,000 ft — up 7 to 9% grade — to dump-area. Each scraper averaged 800 yds per 8-hr shift. Notice smooth, fast-travel condition of haul road, maintained by grader. Only other machines on the job: 3 push tractors.



**LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS**

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit



# 1,000,000 cu yds to move in 16 weeks

That was the schedule tackled by Carl M. Halvorson, Inc., Portland, Oregon, contracting firm. The job: stripping one million cu yds of clay and rocky overburden at Lompoc, California — uncovering diatomaceous deposits for a commercial processing plant. To meet the tight, 16-week production deadline, Halvorson moved in 7 big B Tournapulls®. How did these LeTourneau-Westinghouse scrapers make out? Pictures and captions tell the story!



**Dumping into ravine —**

Confined dump area in deep ravine didn't slow down production cycles of these big, maneuverable Tournapull-Scrapers. They spread smooth and fast, on the run. Halvorson's "B's" are "veteran" performers. Average age of these LeTourneau-Westinghouse machines is 3 years. During that time, they've turned in big-yardage performance on dam and highway jobs in Washington and Oregon.



**Better than ever —**

Tournapull's positive-traction power-transfer differential, kingpin power-steer, electric controls all played an important part in completing Halvorson's 1,000,000-yard job on schedule. These same LW advantages are incorporated in today's bigger, more powerful V-Power "B" — 430 hp, 29 heaped-yd capacity (58 yds in tandem). It's shown above — your best bet for big-scraper profits! Ask for details.

## Step Up Trencher Performance with PENG<sup>O</sup> Trencher Teeth



Performance-proved on thousands of PENG<sup>O</sup> Earth Augers, PENG<sup>O</sup> "Wisdom Teeth" are now available for trenching machines of all types. They offer these profitable advantages:

**FASTER DIGGING...** More trench per day! In most instances you can run in one gear higher.

**VIBRATION REDUCED...** to barest minimum when digging with PENG<sup>O</sup> Wisdom Teeth—less wear and tear on machine.

**HARDPAN, SANDSTONE, CALICHE and ROCKY GROUND...** Performance is outstanding with PENG<sup>O</sup> Wisdom Teeth in these formations.



**EASY, QUICK TOOTH CHANGE...** Operators like PENG<sup>O</sup> because they drive on and off with ease. Owners like PENG<sup>O</sup> because they change so much faster! Patented "Rubber Lock" holds teeth securely.

Try PENG<sup>O</sup>! We guarantee complete satisfaction! Trencher teeth and shanks available in a range of sizes from smallest to largest. Write for literature, prices, giving makes of your machines. Distributorships available to franchised dealers for trenching machines.



Circle 176 on Reader Service Card

## EQUIPMENT NEWS . . .

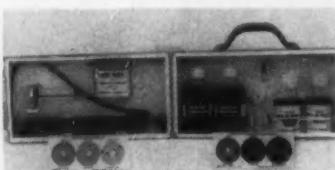
For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.



### Portable Sandblaster Cleans Equipment

The model 28A portable sandblaster quickly cleans dried cement, rust, dirt, or paint from equipment and leaves a clean, dry etched surface that provides an excellent bond for new paint. Constructed of  $\frac{1}{8}$ -in. steel, the sandblaster measures 29 in. high. Tank diameter is 6 in. It weighs 24 lb empty and has an abrasive capacity of 28 lb sand. The unit operates effectively on an air supply from a 2-hp compressor, consuming about 8 cu ft of air a min using the furnished 3/32-in. nozzle. A 5/32-in. nozzle, also furnished, will consume about 20 cfm from a 5-hp air compressor. The unit will take abrasives between 20 and 100 mesh. Price: \$140, fob, Washington, Mich.—Handi-Blast Div., Hamill Mfg. Co., Inc., Washington, Mich.

Circle 308 on Reader Service Card



### Motor-Oil Testing Kit Performs Speedy PM

The Simplex portable oil testing kit contains all the necessary equipment for inspection of lubricating oils. By conducting four tests in accordance with Lengor

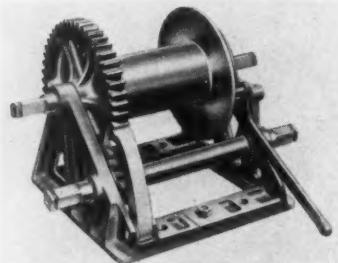
instructions, a simple preventive maintenance field check can be made. The solid contaminant test reveals abrasive solids in oil; the water test detects water or anti-freeze in engine oil; the fuel dilution test exposes damaging fuel dilution; and the corrosive acids test reveals harmful acids in the oil.—Lengor, Inc., Towns-Worth Building, Box 126, Indianapolis, Md.

Circle 309 on Reader Service Card

### Derrick Winch Takes 500 Ft of Cable

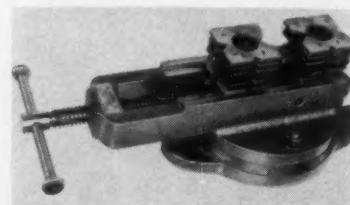
This all-steel derrick winch handles up to 500 ft of  $\frac{1}{4}$ -in. cable and operates in direct drive for high-speed line take-up. For lifting, it operates with a 4 to 1 gear ratio. It has a spring-loaded dog, which can be released for free spooling, and a lever-operated hand brake.

One man can easily lift loads up to 1,000 lb with a single line. Two



men using two cranks and a single line can lift up to 2,000-lb. loads.—Beebe Bros. Mfg. Co., Seattle, Wash.

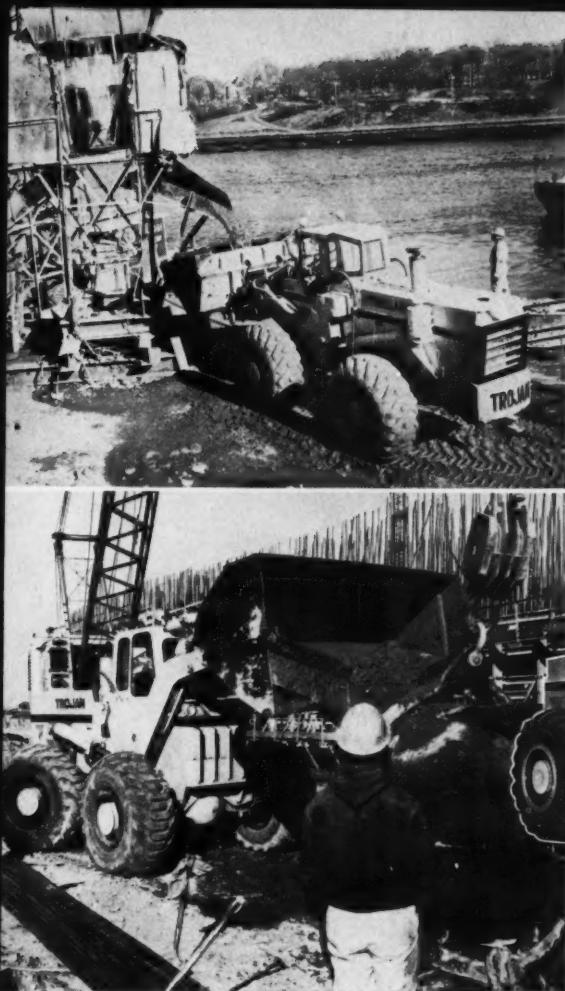
Circle 310 on Reader Service Card



### Vise Jaws Hold Numerous Shapes

Multiform profiles are ground into the steel jaws of the Super Vice to grip a variety of shaped materials. The jaws can be positioned to firmly hold rounds, squares, flats, rectangles, angles, tees, or tubing. It also is able to hold thin-wall tubing without distortion.—C. H. Stoelting Co., 424 N. Norman Ave., Chicago 24, Ill.

Circle 311 on Reader Service Card



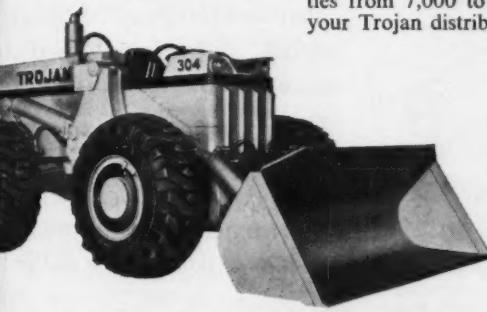
AD NO. 44-39

## HELPS BRIDGE THE NARROWS

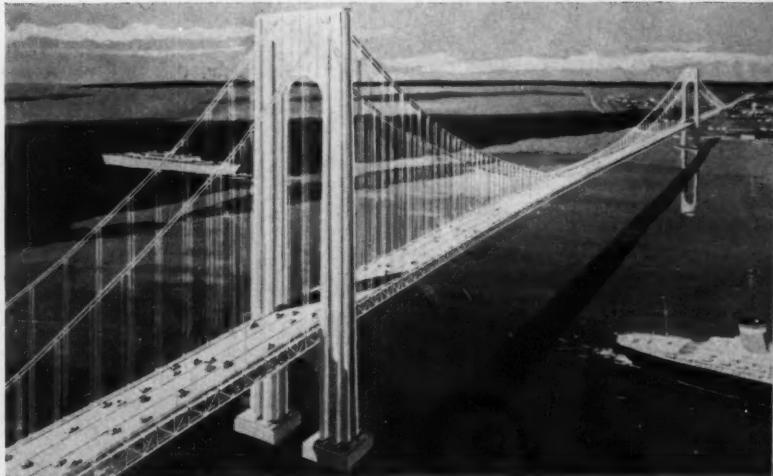
### VERRAZANO-NARROWS BRIDGE



When completed in 1965, the bridge will be the longest suspension span in the world. Crossing the Narrows of New York Bay between Brooklyn and Staten Island its total length, including approach structures, will be 13,700 feet. At its mid point, the lower traffic deck will be 227 feet above the water.



# TROJAN



**TROJAN®**  
TRACTOR SHOVELS  
**YALE & TOWNE**

**THE YALE & TOWNE MANUFACTURING COMPANY**  
**TROJAN DIVISION • BATAVIA, NEW YORK**

Circle 177 on Reader Service Card

## Model 304 ferries concrete for world's longest suspension bridge

Because of its speed . . . power . . . and mobility this Trojan tractor shovel has been a prime factor in keeping the joint venture of J. Rich Steers, Inc. and Frederick Snare Corp. on schedule. During construction of two tower piers on either side of the Narrows for the Verrazano-Narrows Bridge, the Trojan 304 will handle 32,000 yards of concrete.

On a small island 150 feet from shore, the powerful 304 ferries concrete from a central batch plant over a U-shaped, 400 foot haul road to the crawler cranes. Handling 2½ yards of wet concrete, the 304 completes one full work cycle in less than two minutes. Actual travel time to negotiate the haul road is 40 seconds . . . either in forward or reverse direction.

When your job means moving heavy loads at a profit, consider the cost saving features of the Trojan tractor shovel. For an on-the-job demonstration of any of the seven models with capacities from 7,000 to 24,000 pounds, ask your Trojan distributor.

# Quick!

**GET EQUIPMENT ON THE JOB—QUICK!  
START IT PAYING FOR ITSELF AND  
EARNING PROFITS—QUICK!**

*Speed is economy. The narrower the profit margin, the greater the need to work fast. SPEED is one of the profits you get when you deal with Heller. Heller knows both the sale and the use of construction equipment. Heller men aren't tied up in red tape; they size things up on the spot, make their own decisions, and this puts equipment on the job and earning FAST.*

*Heller arrangements are sensible and flexible, and "Pay-As-You-Earn" is one of many optional variations. Find out how Heller's quick, informal financing service and practical point of view may help you these days when every dollar counts.*

*You Go Faster and Farther With Heller Dollars*

CM&E-7

**Walter E. Heller & Company**



105 W. Adams Street, Chicago 90, Illinois • 342 Madison Ave., N.Y. 17

Fulton National Bank Building, Atlanta 3, Georgia

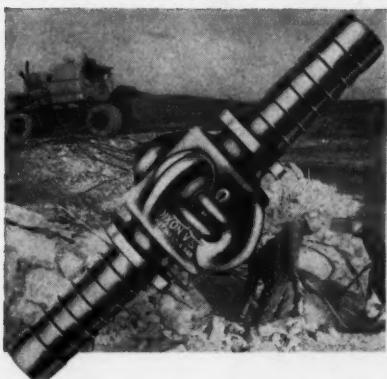
Walter E. Heller & Company of California, 849 S. Broadway, Los Angeles 14

Walter E. Heller & Company of New England, 31 Milk Street, Boston, 9, Mass.

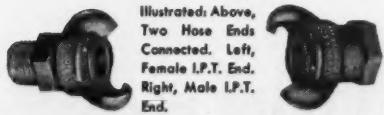


Circle 178 on Reader Service Card

**Sign of DIXON Quality**  
For Nearly Half a Century



**"AIR KING"**  
UNIVERSAL TYPE  
**HOSE COUPLING**  
*Quick-Acting,  
Versatile, Safe...*  
FOR COMPRESSORS,  
ALL KINDS OF AIR TOOLS,  
WATER, OIL AND  
SPRAY HOSE



Illustrated: Above,  
Two Hose Ends  
Connected. Left,  
Female I.P.T. End.  
Right, Male I.P.T.  
End.

Used the world over for its convenience and reliability under all service conditions. No parts to foul up or get out of order. Locking heads same size for all hose shank and threaded end sizes up to 1". Quickly connected and disconnected. Auxiliary locking device for added safety. Regularly furnished in rustproofed malleable iron or bronze, but available in other metals on special order.



Stocked by Distributors and Manufacturers  
of Industrial Rubber Products

**DIXON**  
Valve & Coupling Co.

GENERAL OFFICES & FACTORY—PHILADELPHIA 22, PA.  
BRANCHES—CHICAGO • BIRMINGHAM • LOS ANGELES • HOUSTON  
DIXON VALVE & COUPLING CO., LTD., TORONTO Associate Companies  
Burr Iron Company, Inc., Quinsigamond, Pa. • Precision Drawn Steel Company, Cudahy, N.Y.

Circle 259 on Reader Service Card

JULY, 1961

## EQUIPMENT NEWS . . .

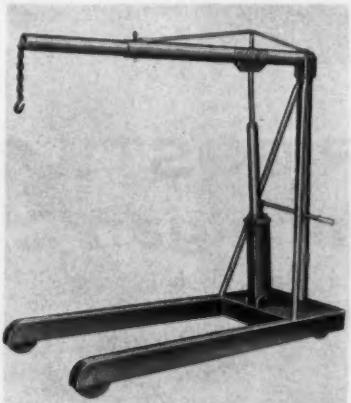
For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.



### Cordless Electric Drill To Be Released This Fall

Black & Decker's Cordless electric drill will go on the market this September. It will be priced at about \$50. The first cordless electric drill ever made, it weighs only 4 lb. The Cordless will produce 75 1/2-in.-dia holes in 3/4-in. fir before it needs re-energizing. Its power cells can be recharged 400 times by another Black & Decker unit, which is plugged into the rear of the tool and into a conventional electrical outlet.—Black & Decker, Towson 4, Md.

Circle 312 on Reader Service Card



### 2-Ton Crane Added To Lift Equipment Line

With the addition of this 2-ton model, Ausco now offers four capacities of mobile shop cranes. Other models handle up to 1/2, 3/4, and 1-ton each. All cranes are hydraulically controlled, have telescoping booms with chain and hook, and are mounted on large front wheels and ball bearing rear casters. — Auto Specialties Mfg. Co., St. Joseph, Mich.

Circle 313 on Reader Service Card



Say, this Universal outfit gives real complete engineering service.



What kind of service?



Says here they provide complete form details, estimates, bills of material — got field service men too. Claim they're concrete forming experts — been in business since 1912. — Make UNI-FORM Panels.



Where do I get more information on this outfit?



See that coupon down there? Fill it out and mail it to them. They'll send you the new Universal Catalog — has complete story on Universal products for concrete construction. Don't wait.

Send me a copy of the new Universal Catalog 761.

NAME \_\_\_\_\_

TITLE \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE STATE \_\_\_\_\_

**UNIVERSAL FORM CLAMP CO.**

1238 N. Kostner Avenue, Chicago 31, Illinois

Circle 179 on Reader Service Card



*"Material-handling worries ended," reports leading Wisconsin building contractor*

## **TIME, LABOR COSTS CUT IN HALF by versatile Michigan Tractor Shovel**

*In 18,000 hours, NO breakdowns*

Savings of 40 to 90% in time and 50 to 75% in labor costs resulted when the Selmer Company, Green Bay, Wisconsin, assigned material handling to this Model 75A Michigan Tractor Shovel.

"You might say the Michigan combined the mobility of a pickup truck with the traction of a crawler," explains one Company official. "It certainly eliminated the usual problems of unloading and moving building supplies: the slow expensive hand labor . . . the slowness and lack of mobility of crawler-loaders . . . the lack of capacity of easy-to-get-stuck farm-type tractors."

Efficiency has reached a new high too!  
"In the six years since we bought the Michigan . . . over

18,000 operating hours," recalls Selmer's general superintendent, Norb Tilkens, "we've NEVER had the machine break down on the job!"

### **Saves 3 man-hours unloading blocks**

One typical job assigned the 1½ yd 80 hp Michigan is moving palletized concrete blocks from trucks to scaffolding. Unit lifts 68 blocks, weighing 3,800 lbs AT ONCE. These are stacked 10 ft high so laborers can skid blocks direct onto scaffolds. Entire job, including stacking, takes two men 10 minutes. Unloading alone used to take five hand-laborers an hour. And an elevator had to be set up and used continually.

## Saves \$15 to \$25 per brick truck

Similar savings are reported when brick is handled. It used to take four men using brick tongs three hours to unload a semi-trailer. Now, Selmer has the bricks palletized in 500-unit lots, 12 pallets to the semi . . . unloading takes the Michigan and two men 10 to 15 minutes. Smaller trucks carry 4 pallets, take 5 minutes to unload with the Michigan compared to 1½ hours with four hand laborers. Savings average \$15 to \$25 per truck *including extra charges for palletizing the bricks!*

## Replaces expensive crane to unload marble

Unloading carloads of marble or cast stone always gave Selmer Company a costly headache too. Formerly, they rented a crane. Recently, however, Supt Tilkens designed and fabricated a special boom which attaches to the tilt bracket. With this, the Michigan reaches across a truck, lifts two or three slabs of marble from the railroad car, gently lowers each 700 lb load to the truck bed. In a few hours, the car is completely unloaded. Savings on a typical 15-car shipment run \$500 or more.



## Eliminates ramps, pump set-up for concrete

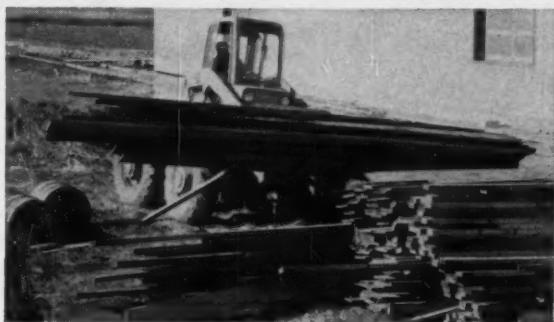
Above is another home-made attachment . . . a concrete bucket which can be lifted on the Michigan forks. It carries four wheelbarrowfuls per load. Pour is made simply by tilting forks slightly forward so concrete flows out of 6" square spout into forms. Time and labor of barrow-men are saved. Nor does Selmer have to build ramps or, on small pours, set up a pump.

## Handles wide variety of other materials

Lots of other materials have been handled from time to time. Some of them are:



**Rip-rap**—old brickbats and concrete dozed into river to protect building.



**Lumber**—as much as ¼ of a truck load (3500 to 4000 lbs) unloaded at once, stockpiled, later carried to hoist.



**Rolls** of reinforcing wire—carried on forks, stockpile to hoist. Fork spacing changed in seconds to fit roll openings.



**Trash**—cleaned from around building site.

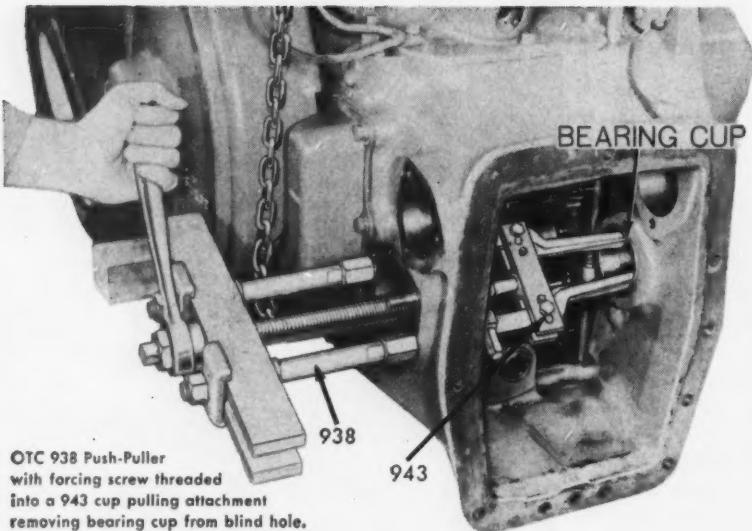
## One man changes bucket, forks

Some of these jobs, you'll note, call for fork lift, some for tractor shovel bucket. These two attachments (and others) are easily interchanged. It takes Selmer's operator, John DeMoulin, working alone, 10 minutes.

Michigan is a registered trademark of

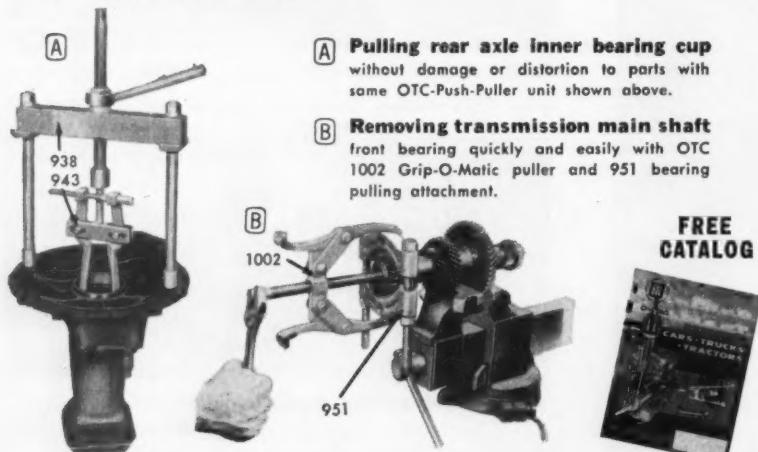
**CLARK® EQUIPMENT**

**CLARK EQUIPMENT COMPANY**  
Construction Machinery Division  
2403 Pipestone Road  
Benton Harbor 23, Michigan  
In Canada: Canadian Clark Ltd.,  
St. Thomas, Ontario



## Save time, cut costs in removing and installing cups, bearings, gears, seals, pulleys, etc., with versatile OTC pullers

Save time, up profits by having the right tools in your shop to get the job done quickly, safely, easily — versatile OTC pullers with attachments. Manual or hydraulically operated . . . fit all makes of equipment. Complete hydraulic maintenance sets available in 17½, 30 and 50-ton capacities.



See your OTC distributor or write for further information.

**RESEARCH**  
**ENGINEERING - DEVELOPMENT**

**OTC**

**OWATONNA TOOL COMPANY**  
380 Cedar Street, Owatonna, Minnesota  
Cable Address: TOOLCO

Designers and manufacturers of the world's most complete line of Maintenance Tools and Hydraulic Equipment.

HOLLOW HIVE PULLER SETS    HYDRAULIC HOSE AND PUMPS    HYDRAULIC SHOP PRESSES    HAND TOOLS

Circle 182 on Reader Service Card

## EQUIPMENT NEWS . . .

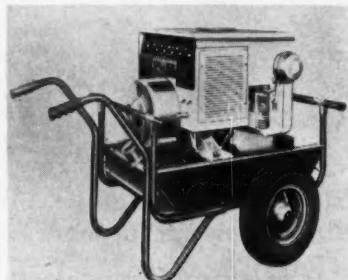
For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.



### Airless Spraying System Suited to Medium Production

The HydraAirless 28 medium production assembly consists of a pump, container, hose unit, H-Gun, and a choice of tungsten carbide spray tips. The 28 to 1 ratio pump provides pressures to 2,800 psi. Available as a portable unit with 10-gal container, the HydraAirless 28 may also be equipped with a dolly and air-operated elevator for added convenience. — The Spee-Flo Co., 6614 Harrisburg Blvd., Houston 11, Tex.

Circle 314 on Reader Service Card



### Welder Doubles as Power Plant

This engine-driven dc welder also serves as an ac power plant. Rated at 200 amps, the P&H unit delivers 3½ kw, 120-v ac current for lighting and electric tools. Power is supplied by a two-cylinder, 12.8-hp air-cooled gasoline engine. — Harnischfeger Corp., 4444 W. National Ave., Milwaukee 46, Wis.

Circle 315 on Reader Service Card



## "EUC" C-6

lowest cost tractor in the 200 h.p. class...

### ▲ SERVICE ACCESSIBILITY

... years ahead engineering gives fast, easy access to major components to cut repair and replacement labor time. Compared with a competitive crawler of the same class, the C-6 saves 7 hours on a radiator replacement, 5 hours on a drive sprocket, 6 hours for an engine change, 17 hours on recoil system replacement. Every hour cut from downtime means more productivity and lower operating cost.

### ▲ PROVEN POWER TRAIN

... every component, the GM 6-71 engine, Allison Torqmatic Drive and Euclid planetary final drive, are job proved for long service life and efficient performance. Parts and service are readily available everywhere.

### ▲ LOWER ENGINE PARTS COSTS

... individual engine parts . . . pistons and rings, liners, connecting rods, etc. . . . are lower in cost . . . up to 72% less. And a complete engine replacement from fan to flywheel costs only half as much in the C-6!

If you're interested in cutting costs and getting more crawler production, check the Euclid C-6 . . . the lowest cost tractor and most versatile, by far! Your dealer has facts and figures and can probably show you a "Euc" crawler at work on a nearby job.



# EUCLID

DIVISION OF GENERAL MOTORS, HUDSON, OHIO

Plants at Cleveland and Hudson, Ohio and Lanarkshire, Scotland



USED BY MEN WHO BUY EQUIPMENT FOR WHAT IT SAVES

## Money-Savin' Saws for Contractors

To the professional woodcutter, Homelite Chain Saws are noted for their Money-Makin' features. To the contractor, these same features are Money-Savin' advantages. It's easy to see why. Homelite Saws are rugged — costless to maintain. They stand up to grueling day-in, day-out operation and ask for more. They're fast-cutting saws — reduce time and cost of clearing land for buildings and roads. And they're lightweight and easy-to-

handle to minimize operator fatigue.

The powerful, new Homelite 707D direct drive saw shown above will fell trees up to 5 feet in diameter. Yet it weighs only 19 lbs. less bar and chain. Seven other gear-drive and direct-drive models to choose from . . . matched in power and performance to any woodcutting job. Plus Money-Savin' clearing bars, brush cutters and plunge bows. Write for complete information.



Homelite chain saw dealers and Homelite factory branches are located throughout the country. Your nearest one is as close as your phone. Call or write for convincing demonstration or fast service in any way.

**HOMELITE**  
CARRYABLE  
**SAWS** PUMPS • GENERATORS  
BLOWERS

**HOMELITE:** A DIVISION OF TEXTRON INC.— 1007 RIVERDALE AVE., PORT CHESTER, NEW YORK • IN CANADA • TERRY MACHINERY CO., LTD.

← Circle 183 on Reader Service Card

184

Circle 184 on Reader Service Card

CONSTRUCTION METHODS

## EQUIPMENT NEWS . . .

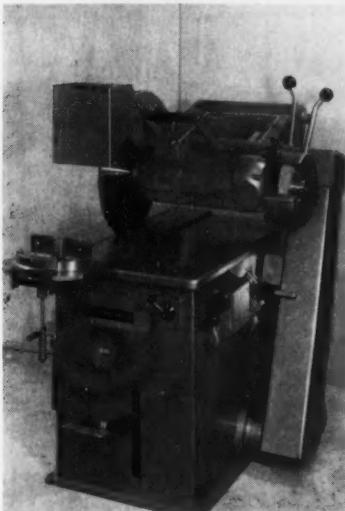
For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.



### Unit Supplies 125 Lb. Of Welding Wire

Alloy Rod's wire feed unit for semi-automatic open-arc hard surfacing provides 2½ times the wire supply of most coil-type machines. Combining the Weld-Pak as an integral part of the Wear-O-Matic wire feed unit provides 125 lb of continuous welding wire.—Alloy Rods Co., P.O. Box 1828, York, Pa.

*Circle 316 on Reader Service Card*



### High-Speed Saw Unit Includes Grinder

The Uni-14SA cut-off saw and pedestal grinder provides maintenance shops with one economical unit combining the versatile Promacut saw and a general purpose grinding wheel. It makes ac-

curate cuts of all types in carbon and stainless steels, as well as many of the new alloys, without clamping or coolant. Straight cuts, mitres, notches, and incisions can be made by either free-hand or table cutting. Through-cuts on  $2 \times 2 \times \frac{1}{8}$ -in. angle are made in 1 sec. Up to 2,500 such cuts can be made before resharpening.—Production Machinery, Inc., 4941 W. Belmont Ave., Chicago 41, Ill.

*Circle 317 on Reader Service Card*

### New Series Added To Test Stand Line

The latest series of King alternator, generator, and regulator test stands are designed for 6, 12, 24, and 32-v testing. They include a diode protection circuit to prevent damage to alternator diodes



from accidentally reversed battery or test lead connections. The alternator-generator mounting fixture handles units of all lengths, from 3 in. to  $7\frac{1}{4}$ -in. in diameter.—King Electric Equipment Co., 9123 Inman Ave., Cleveland 5, Ohio.

*Circle 318 on Reader Service Card*



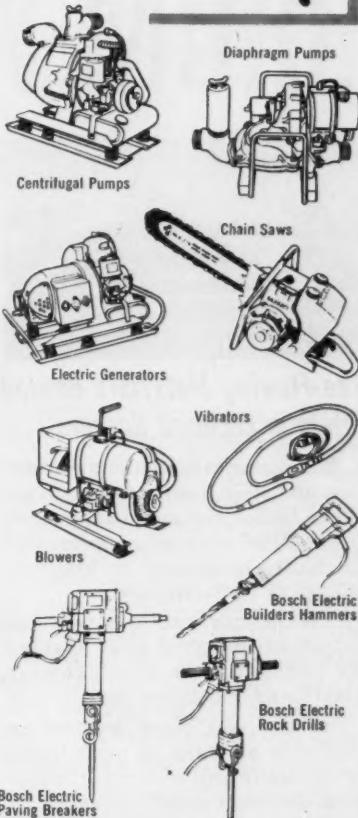
### Wrench Records Maximum Torque

The Memory torque wrench contains a pointer that records the maximum torque application made. It is a precise measuring gage that can be used for destructive tests as well as normal applications.—P. A. Sturtevant Co., Addison, Ill.

*Circle 319 on Reader Service Card*



**HOMELITE** Factory Branches throughout the country sell and service Homelite's complete line of carryable construction equipment.



### HOMELITE FACTORY BRANCHES

**EAST:** CONNECTICUT: Greenwich, Hartford • NEW JERSEY: North Arlington, Woodbridge • NEW YORK: Albany (Latham), Buffalo, New York (North Arlington, N. J.), Rochester, Syracuse • MAINE: Orono • MARYLAND: Baltimore • MASSACHUSETTS: Boston (Allston) • PENNSYLVANIA: Altoona, Erie, Harrisburg, Hazleton, Philadelphia, Pittsburgh, Malvern • VIRGINIA: Arlington, Richmond, Roanoke • WEST VIRGINIA: Charleston, Clarksburg

**SOUTH:** GEORGIA: Atlanta • FLORIDA: Jacksonville, Miami • LOUISIANA: New Orleans (Metairie), Shreveport (Bossier City) • NORTH CAROLINA: Charlotte, Raleigh • OKLAHOMA: Oklahoma City • TENNESSEE: Knoxville, Memphis • TEXAS: Dallas, Lufkin

**MID-WEST:** ILLINOIS: Chicago (Stone Park) • INDIANA: Indianapolis • MICHIGAN: Detroit, Grand Rapids • MINNESOTA: St. Paul • MISSOURI: Kansas City, St. Louis • NEBRASKA: Omaha • OHIO: Cincinnati, Cleveland, Toledo • WISCONSIN: Milwaukee

**WEST:** CALIFORNIA: Fresno, Los Angeles (Alhambra), Sacramento, San Francisco • COLORADO: Denver • OREGON: Portland • UTAH: Salt Lake City • WASHINGTON: Seattle, Spokane

## HOMELITE

A DIVISION OF TEXTRON INC.  
1007 Riverdale Ave., Port Chester, New York

In Canada:  
TERRY MACHINERY CO. LTD.

# NOW! GAR WOOD OFFERS TO HELP YOU



## Free-Flowing Materials Hauled Safely in Enclosed Hoppers

Bulk handling of cement, lime, chemicals, and other free-flowing materials can be hauled fast and inexpensively in Gar Wood enclosed hoppers—with no chance of damage or loss from spillage or contamination.

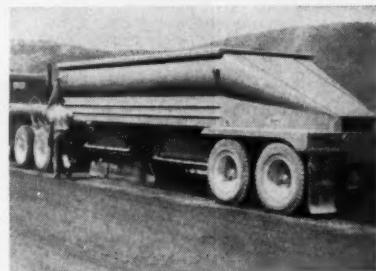
These hopper trailers let you load and unload in record time, haul bigger payloads over the highways, schedule more trips per year.

Enclosed Gar Wood hoppers are available as train or semi-trailer units, equipped with one, two, or three discharge gates.

## TRAILERS CUSTOMIZED FROM STANDARD EQUIPMENT TO MEET EVERY RESTRICTION, EVERY APPLICATION

Though Gar Wood hopper trailers are available in a wide range of open and closed models for train and semi-trailer operation, with a complete line of discharge gates, they may also be customized to your exact road-weight restrictions, your exact application.

This design versatility allows you not only absolute maximum payloads, but faster, more efficient operation at minimum maintenance and operating costs. You get a unit specifically tailored to bring you the greatest pos-



sible revenue within your specific field of operation.



**GAR WOOD "EASTERNER"** hopper trailer gives you powerful tandem-drive traction plus far greater legal payloads. This unique combination produces extra hauling revenue for both on- and off-highway work.

## New York Contractor Earns 45% More With "EASTERNER"

A recent on-the-job Payload Analysis in New York State compared the performance of a tandem rear dump truck and a Gar Wood "Easterner" hopper trailer, both owned by the same contractor. The job involved hauling gravel for road construction.

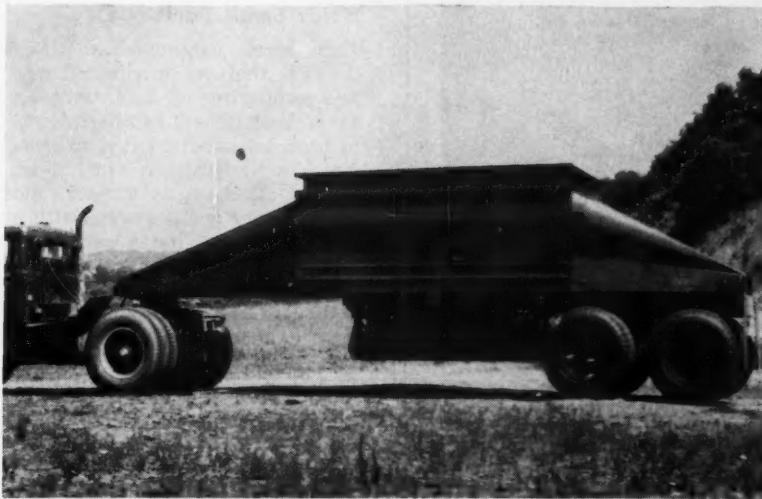
The figures shown were not drawn up in an office, they were compiled with the contractor in the field. The contractor is now replacing more of his rear dumps with Gar Wood "Easterners."



HOPPER TRAILER	REAR DUMP TRUCK
Legal Yards Per Trip	15
Yard-Miles Per Trip	105
Revenue Per Trip, Per Unit	\$13.20
Revenue Per Day	\$158.40
Working Days Per Year	120
Extra Revenue Per Day	\$49.08
EXTRA REVENUE PER YEAR, PER UNIT	\$5,889.60

# FREE PAYLOAD ANALYSIS HAUL MORE-EARN MORE!

*New Service Can Help You Greatly Increase  
Your Hauling Income*



GAR WOOD MONO-SHELL HOPPER TRAILERS are sold and serviced by the nation's largest network of experienced truck equipment specialists. These Gar Wood distributors know your local hauling problems, understand your state axle-weight laws.

## HOPPERS ELIMINATE FINES, RAISE PAYLOADS, LET YOU OPERATE LEGALLY AT A PROFIT

Whatever your regional requirements, Gar Wood hoppers let you haul legal payloads not obtainable with any other equipment, and eliminate profit-slashing overload fines. The reasons: exclusive Mono-Shell construction that cuts dead weight to a minimum, and exclusive mounting techniques that distribute more weight over a much greater axle span.

Gar Wood has employed these methods in designing hoppers for on-and off-highway work, in hoppers for hauling all types of materials, in hoppers specifically tailored to axle-weight laws in every state in the country.

Start taking advantage of this opportunity to increase your profits now. Let Gar Wood show you how

hoppers will give you a legal operation that is faster, more efficient, more productive—an operation that will let you make much more money.

## SEND FOR YOUR FREE PAYLOAD ANALYSIS TODAY

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

SEND FREE LITERATURE

SEND FREE PAYLOAD ANALYSIS FOR THE FOLLOWING:

Type of material hauled \_\_\_\_\_

Present type of equipment \_\_\_\_\_

Tare weight of present equipment \_\_\_\_\_

Tons hauled per trip \_\_\_\_\_

Miles per trip (one way) \_\_\_\_\_



Send coupon to:  
**GAR WOOD**  
**INDUSTRIES, INC.**  
Customer Service Dept.  
Wayne, Michigan

Circle 187 on Reader Service Card

WAYNE, MICHIGAN—Gar Wood Industries, world's pioneer truck equipment firm, announces an exclusive new service that determines, in dollars and cents, the amount of additional income you can earn with Gar Wood Mono-Shell hopper trailers, and then helps you earn it!

Gar Wood engineers first make a Free Payload Analysis of your operation. They calculate the hauling revenue for each of your present units by yard-mile, day, and year, and compare the data with the established nine-year performance record of Gar Wood hoppers. And then, regardless of your hauling job, Gar Wood will show you how to use hoppers to earn that extra income.

The results are often amazing. To date, Gar Wood has been able to offer haulers as much as 45% extra revenue per year (see story opposite page) plus significant increases in operating efficiency.

Think what 45% more revenue, practically all pure profit, could mean on your own job. Then mail the coupon below.



## REPOINTING MADE EASY with new "Pair for Wear" hardfacing rods and "Wear-Sharp" repointers

You'll smile too every time you see the results obtained with Amsco's hardfacing rods and dipper tooth repointers. This combination gives you the toughness of Amsco Manganese Steel plus the wear resistance of Amsco hardfacing. Dipper teeth wear evenly and stay sharp longer.

Amsco's "Pair for Wear" does the job. Repointers are welded to worn teeth with Nicro Mang\* manganese electrodes that eliminate the use of stainless steel. Hardfacing is done with the all-purpose hardfacing rod, X-53.

These two rods are designed to handle 90% of your hardfacing jobs, cut rod inventories and increase use. They have high strength, superior crack resistance and ability to hold a stable arc.

Write to Amsco for your free sample kit containing the Nicro Mang and X-53 electrodes. They are available from leading welding distributors in 50 lb. manual packages and 50 lb. semi-automatic coils.

\* TRADEMARK REGISTERED

861



**AMSCO**  
AMERICAN MANGANESE STEEL DIVISION  
CHICAGO HEIGHTS, ILLINOIS

Other plants in:

Denver • Los Angeles • New Castle, Del. • Oakland, Calif. • St. Louis  
IN CANADA: Joliette Steel and Manitoba Steel Foundry Divisions

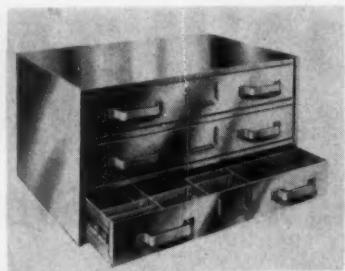
Welding products distributed in Canada by Canadian Liquid Air Co., Ltd.

Circle 188 on Reader Service Card

188

## EQUIPMENT NEWS . . .

For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.



### Steel Cabinet Holds Small Parts

This steel cabinet has three drawers that are subdivided into five compartments 3 in. wide by 11 in. long. These compartments, in turn, are subdivided with cross dividers adjustable on 1-in. centers. Each cross divider and each drawer are provided with a label holder for index cards that also are furnished. The cabinet measures 17 in. wide, 9 in. high, and 11 in. deep and is finished in gray baked enamel.—Bay Products Inc., 181 W. Cambria St., Philadelphia 32, Pa.

Circle 320 on Reader Service Card

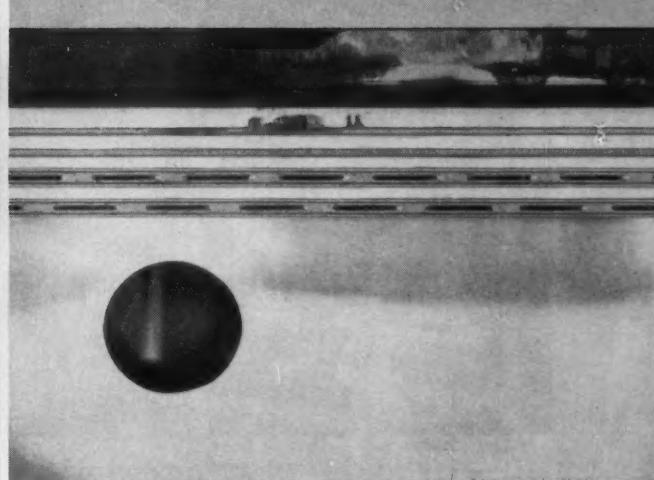
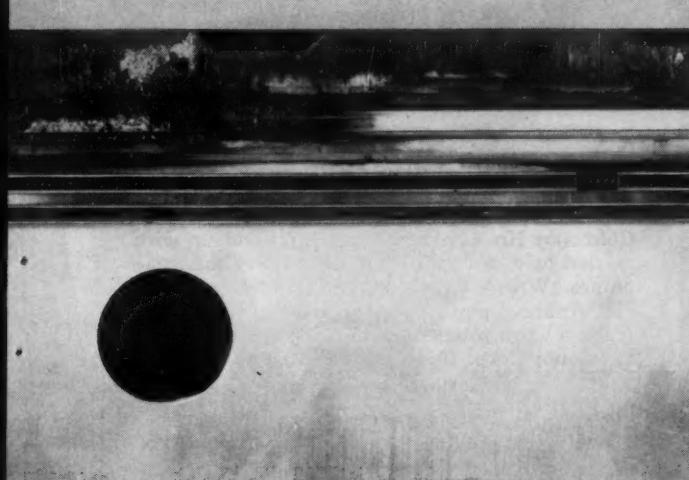


### Kit Contains Power Steering Replacement Parts

On-the-spot replacement of power steering lines for any make truck, tractor, or car can be made with the Surgepruf kit. It contains all required hose, couplings, tube assemblies in various angles, and all required adapters. The hose is  $\frac{3}{8}$ -in. and has a burst pressure of 4,500 psi. The complete kit sells for \$90.00.—Alemite Div., Stewart-Warner Corp., 1826 Diversey Pkwy., Chicago 14, Ill.

Circle 321 on Reader Service Card

CONSTRUCTION METHODS



**Left:** Poor performance of competitive diesel lubricant is easily noted on piston rings.  
**Right:** Superior cleanliness—typical of Shell Rimula Oil performance.

## BULLETIN:

### **Shell reveals how Rimula Oil saved a road construction company \$37 per diesel engine on each drain period**

A leading road construction company tested Rimula® Oil on a freeway job.

**Object: to find an oil that would overcome two key problems in its heavy-duty diesel operations.**

**1. Heavy engine deposits. 2. Short oil drains.**

**Read how Shell Rimula Oil tackled these problems, kept the project moving at high speed—and helped to cut overhead.**

A LEADING road construction company was having two costly problems with its supercharged diesel engines. Deposits were impairing engine performance. Oil drains were required every 80 hours—far too often for economical operation.

To fight these problems, the company switched to Shell Rimula Oil. After 2000 hours of operation in these same diesel engines, the oil's performance was evaluated.

The company's lube foreman reports these cost-cutting results:

**1. Improved engine performance.**

Shell Rimula Oil greatly reduced lacquer and valve deposits.

Valve mechanisms, bearings, pistons, rings and crankcase were notably free of deposits.

Higher engine efficiency helped the company meet production levels and hold to its maintenance budget.

**2. Longer drain periods.** With Shell Rimula Oil, the 80-hour drain period was extended to 400 hours. Five times as long.

*This saved \$37 on labor and oil costs alone, on each engine, each drain period.*

#### **Gasoline engines cleaner, too**

Shell Rimula Oil has shown some impressive results in gasoline engines, too.

It is well suited for use in gasoline-powered trucks in severe service. If used exclusively, Shell Rimula Oil helps assure clean engines.

For complete data about Shell Rimula Oil, contact your Shell Industrial Products Representative. Or write: Shell Oil Company, 50 West 50th Street, New York 20, N. Y.



**A BULLETIN FROM SHELL**  
—where 1,997 scientists are working to provide better products for industry



## EQUIPMENT NEWS . . . continued

### Alloy Steel Wire Builds Up Crawler Tractor Rollers

Colmonoy No. 300 hard-surfacing build-up wire is designed for semi-automatic welding machines. With a tractor roller mounted in a special rotating positioner, the wire is applied to bring a worn roller back to original diameter.—Colmonoy Corp., 19345 John R. St., Detroit, Mich.

*Circle 329 on Reader Service Card*

### Portable Winch Powered by Car or Truck Battery

The My-te portable winch works off any 6 or 12-v battery and can lift 2,500 lb and pull 5,000 lb. It weighs 60 lb. The drum has a speed of 32 rpm and a capacity of 150 ft of  $\frac{1}{4}$ -in. cable. Other features include constant pressure brake when free spooling cable and a 10-ft remote control cable. Price: \$237.50. — City Engineering Co., Inc., 3547 Massachusetts Ave., Indianapolis 18, Ind.

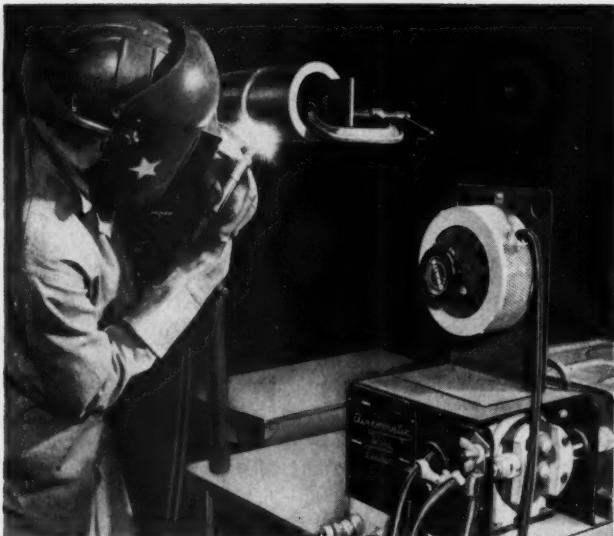
*Circle 330 on Reader Service Card*



### Fluorescent Penetrant Test Kit Detects Defects in Solids

Critical equipment parts can be inspected for cracks, pores, and leaks with the Zyglo Kit No. ZA-43. The kit consists of two cans of penetrant, two cans of developer, four cans of cleaner, a 100-w portable black light, cleaning cloths, wire brush, and steel carrying case. The Zyglo penetrant locates and clearly marks right on the part crack-type defects that are difficult to find by any other method. Under the intense black light, defects glow brilliantly in normally lighted areas. The light operates from any 115-v ac outlet. The cleaner and developer are compounded from fire-safe chlorinated hydrocarbons. Price: \$125.—Magnaflux Corp., 7303 West Ainslee Ave., Chicago 31, Ill.

*Circle 331 on Reader Service Card*



### Manual Gun Welds Thin-Gage Metals

Designed for gas-shielded metal-arc welding of thin-gage metals, the AH30-A gun uses .035-in. and .045-in.-dia steel wires with a variety of feeder equipment. It is rated at 300 amps dc for buried arc process and 200 amp dc for Air-comatic welding with spray transfer.—Air Reduction Sales Co., 150 E. 42nd St., New York 17, New York.

*Circle 332 on Reader Service Card*



LAYING PIPE UNDER WATER was the tough assignment of Lloyd Kispert & Son, contractors of Green Bay, Wisconsin, at the town of Preble, Wisconsin.

## Below the water table...water-tight joints

Lloyd Kispert & Son recently laid 3611 feet of 12-inch K&M Asbestos-Cement Sewer Pipe within a few hundred feet of Green Bay. The water table was so high that the pipe was laid under water. Nevertheless, all joints had to be infiltration-tight. On the next page, Mr. Kispert, in his own words, tells how he solved this problem.





You can dig flatter grades for K&M Asbestos-Cement Sewer Pipe because its bore remains smooth and clean.



Water, snow, mud, and rain can't hold up the installation of K&M Asbestos-Cement Sewer Pipe.

# "K&M ASBESTOS-CEMENT GRAVITY SEWER PIPE GAVE US PERMANENTLY TIGHT JOINTS IN WET GOING!"

"This was an extremely rough job. But, with K&M Pipe, we got tight joints in wet going. The K&M FLUID-TITE® Coupling connected easily, even under water. The men just had to lubricate the tapered end of the pipe and slide it into the coupling. We didn't need any heavyweight coupling pullers. Our men had an easy time handling the pipe because of its light weight. We are very satisfied with K&M Pipe and will use it again."



Mr. Lloyd Kispert

You could lay K&M Asbestos-Cement Sewer Pipe at the bottom of a 58' deep lake, and it would be infiltration-tight.

The smooth bore of this modern pipe remains clean, permanently. The friction coefficient is low. You can plan fewer lift stations and flatter grades.

**K-M**  
BEST IN ASBESTOS  
**Keasbey & Mattison**  
at Ambler

For more information on this top-quality gravity sewer pipe, write to: Keasbey & Mattison Company, Ambler, Pa.

Whatever Type You're Looking For...

# FRUEHAUF BUILDS IT!



**Complete Platform Line**, with units ranging from brawny 50,000-pound capacity workhorse units to lighter-weight multi-purpose and telescoping units. Lengths from 21½ feet for single axle units to 42 feet for tandems.



## The Industry's Only Complete Line of Rugged Construction Hauling Equipment

In addition to a full line of platforms, carryalls and dumps, Fruehauf offers a wide selection of bulk cement tanks, high temperature insulated tanks, pole trailers, and dump trailer chassis. Fruehauf has the industry's *only* truly nation-wide service facilities for your convenience. Long and short term leasing, too, plus a variety of financing plans to make your purchase of Fruehauf equipment easier.

Why not start today to boost your construction profit dollar. Stop in at your nearest Fruehauf Branch and discuss Fruehauf's complete Trailer package with your Fruehauf salesman.

**"ENGINEERED TRANSPORTATION"—The Key to Transportation Savings**



◀ Circle 192 on Reader Service Card  
JULY, 1961

### FRUEHAUF TRAILER COMPANY

10949 Harper Avenue • Detroit 32, Michigan

Please send me Fruehauf's complete line folder for 1961.

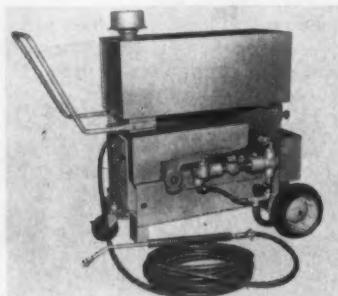
Name _____	(Please print) _____
Company _____	_____
Address _____	_____
City _____	State _____



Circle 193 on Reader Service Card

## EQUIPMENT NEWS . . .

For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.



### High-Pressure Cleaner Is Electrically Powered

The Jenny Multi-Job Washer, an electrically-powered and electrically-heated cleaner, produces a degreasing or cleaning spray of 25 gph at 300 lb pressure and 100 deg rise in solution temperature. It has a float-controlled water supply tank for continuous operation. The machine is offered in portable or stationary models and operates on 230-v, 60-cycle,

ac current. It is equipped with hose rack, 40 ft of solution hose, gun, and three nozzle tips. Weight: 155 lb. — Homestead Valve Mfg. Co.

Circle 322 on Reader Service Card

### Cable Cutter Is Hydraulically Controlled

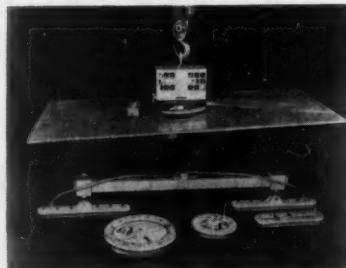
The cutting action of the 1790TN cable cutter is powered by a hand-hydraulic pump that forces fluid through a high-pressure hose to the ram assembly and delivers 25,000 psi pressure on the cutting edges. The edges pass each other for complete shear action and jaws are notched to lock



a cable in during cutting and to minimize crushing or deforming. Another model, No. 1790CD, cuts all types of soft or medium-hard rods, bars, and wire. Model 17907 is a shear type cutter for copper

and aluminum communication cable up to 2-in.-dia.—H. K. Porter, Inc., Somerville 43, Mass.

Circle 323 on Reader Service Card



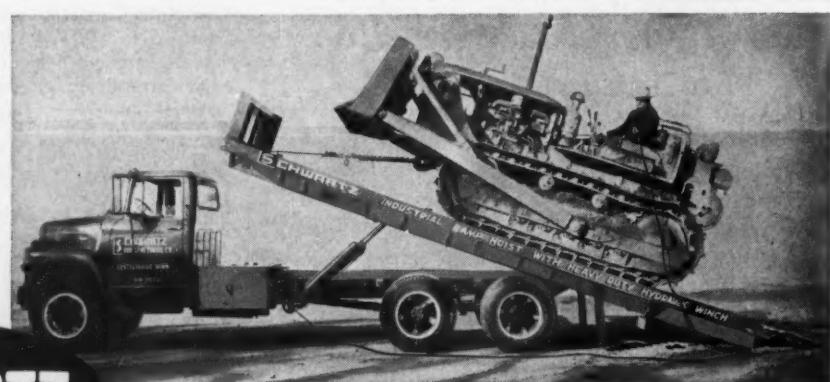
### Vacuum Handler

#### Lifts Up To 1 Ton

The Vac-U-Lifter is an aluminum vacuum handling unit that weighs 65 lb and can lift up to 2,000 lb. It features speedy attachment and detachment of beams or individual pads. The beam length can be specified. For handling various material sizes, the vacuum pads can be adjusted up and down the beam or oval pads may be swiveled for narrow or wide materials.—Vac-U-Lift Co., Salem, Ill.

Circle 324 on Reader Service Card

**The  
BIG LIFT  
you need to  
move faster  
in 1961!**



## Heavy Duty Hydraulic RAMP HOIST with WINCH

### ONE MAN OPERATION

The complete operation of the SCHWARTZ RAMP HOIST is done hydraulically so only one man is required to load, transport, and unload equipment. The heavy winch cable is attached to the equipment and the powerful winch pulls the load up the inclined ramp. When in place, the ramp is hydraulically lowered into place and you're ready to roll at highway speeds.

- Models to fit factory tandems or locally installed tandems, 120" cab to tandem center or longer.

You'll save valuable time and labor by moving powered equipment, heavy machinery, and tools *faster and easier* with a SCHWARTZ RAMP HOIST. This new, heavy duty model is designed specifically for contractors, haulers, and industrial firms to simplify the transporting of equipment and eliminate the need for cumbersome, heavy trailers for medium weight equipment.

For complete information, write Dept. RH-16



**SCHWARTZ** MANUFACTURING  
COMPANY

LESTER PRAIRIE

MINNESOTA

Circle 194 on Reader Service Card

Circle 195 on Reader Service Card ➤

CONSTRUCTION METHODS

# An INSLEY gives the best SERVICE

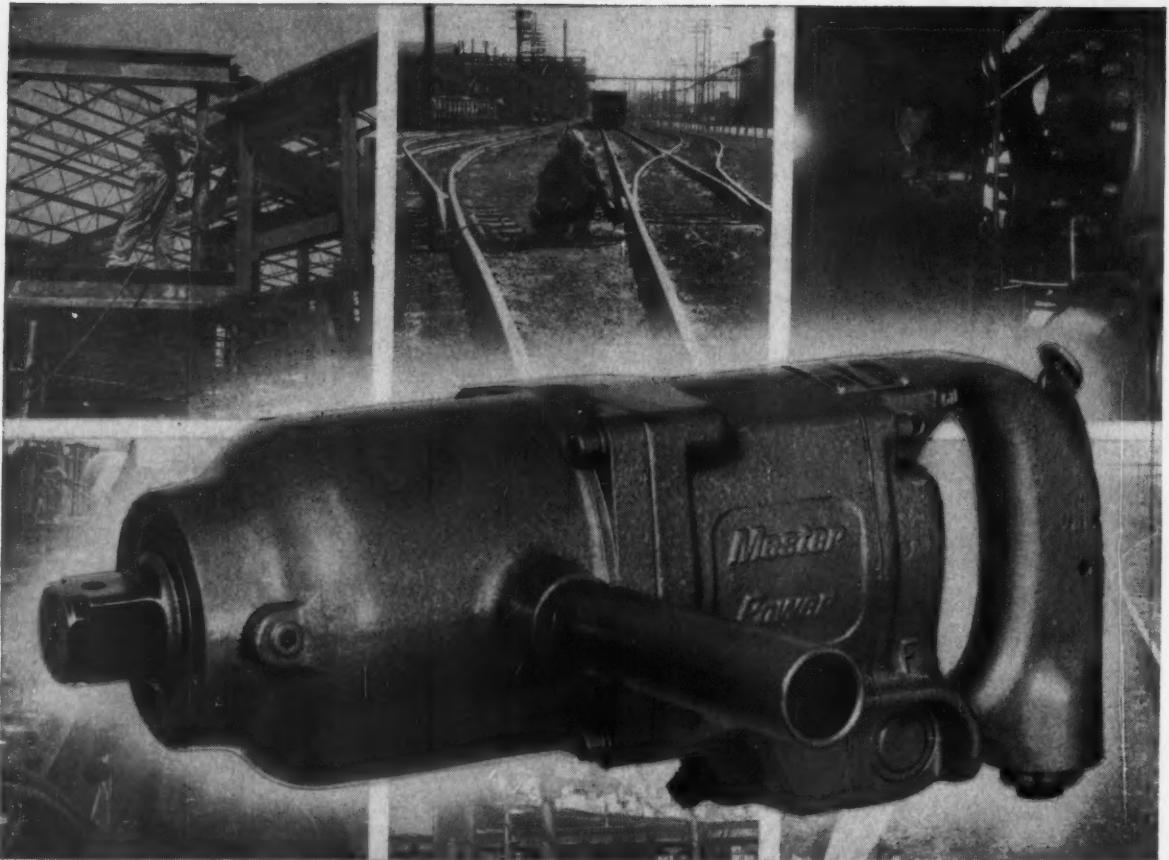
Rough, uneven ground a problem? Not for the Insley M on this bridge pier job. The Insley's excellent stability lets the operator get the most out of his machine regardless of terrain. And with the modern full vision cab, he can work with maximum efficiency and safety. Add this to such production-boosting, profit-making features as planetary gear boom raising and lowering, double boom hoist brake, power load lowering (power up and power down), simplified back-hitch gantry (adjusts from low to high in minutes) and you have a few more reasons why "There's an Insley working near you" . . . a few more reasons why: when you need a machine that produces more in less time, then it's time to try an Insley.

## ... gets the best service, too!

The Insley service network includes over 100 dealer locations throughout the U. S. and Canada. Each dealer has trained servicemen and is well stocked with genuine Insley parts . . . ready to handle virtually any service problem on an around-the-clock basis.



INSLEY MANUFACTURING CORPORATION • P.O. Box 167 • Indianapolis 6, Indiana



#### FEATURES OF THE ALL-NEW MASTER POWER 990 IMPACT WRENCH

- For 1½" high-tensile bolts
- Weighs only 21 pounds
- New "roll-action" engages and disengages impact mechanism
- Popular, protected, push-type reverse valve
- Compact design gives greater maneuverability.
- Hardened, wear-resistant motor end-plates and liner.



## NEW LIGHTWEIGHT CHAMP FOR HEAVY-DUTY WORK

This new Master Power 990 Impact Wrench went to work more than a year ago in shipyards, steel mills, rail yards, on off-the-road equipment, on steel erection and truck assembly. The toughest kind of work in the roughest environments. Our documented performance data is your proof that the new 990 delivers ultimate power, positive engagement, maximum life.

A combination of "roll action" and precision-engineered, cam-timed impact mechanism gives you a tool with no springs, no snap rings, no lost motion. The tried and proved ball-and-race principle of smooth, almost frictionless rolling action engages and disengages impacting blows with precise timing. The powerful air motor and clutch hammer are independently suspended on heavy-duty bearings. You get positive, full

engagement regardless of power input. Result: A compact, light weight (21 lbs.) tool doing up to 1½" high tensile bolting with less vibration, less torque to operator. Its simplified design permits assembly and disassembly with ordinary tools. Try this new tool now!

Ask your nearest Master Power distributor for a demonstration or write us for complete performance information.



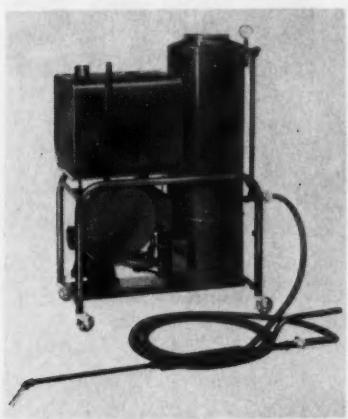
Leading Distributors Everywhere  
**Master Power**

Master Power Corporation • Solon, Ohio  
A **Black & Decker**® Subsidiary

Circle 196 on Reader Service Card

## EQUIPMENT NEWS . . .

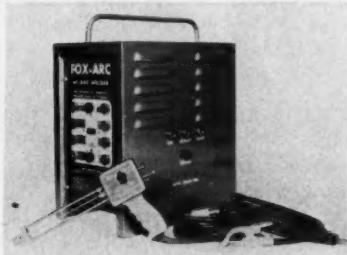
For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.



### Small Steam Cleaner Mounted on Casters

The model 100 steam cleaner is designed for shops with limited cleaning needs or for larger operations requiring an auxiliary or standby which can be easily moved about. The pressure range is from 60-100 lb, and most of the features are the same as on larger Malsbary cleaners. The model 100 is 35 in. long, 19 in. wide, and 53 in. high. It weighs 350 lb. The caster-mounted, oil-fired cleaner has a hose and gun rack. A stationary gas-fired model is also available. Delivered price is \$515.—Malsbary Mfg. Co., 845 92nd Ave., Oakland 3, Calif.

Circle 325 on Reader Service Card



### New Welders Offered With Ranges From 30-200 Amps

Included among the new Fox-Arc models with welding ranges from 30 to 200 amps are the Model F spotweld gun, weighing less than 2 lb, and the Model F-10 power supply. All models are guaranteed for 18 months. Three of the models are available with addi-

tional taps for operating the Model F gun.—Fox Products Co., 4720 N. 18th St., Philadelphia 41, Pennsylvania.

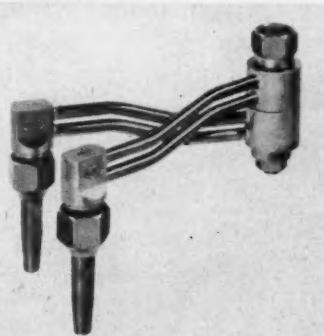
Circle 326 on Reader Service Card



### Hydraulic Device Frees Frozen Grease Fittings

The hydraulic Zirc-Ram quickly frees frozen zirc-type grease fittings with one hammer blow. The new tool, No. 519, works on either straight or angle fittings. One blow generates up to 1,000 lb hydraulic pressure, but will not harm fittings because pressure is exerted by oil, not metal.—Owatonna Tool Co., 380 Cedar St., Owatonna, Minn.

Circle 327 on Reader Service Card

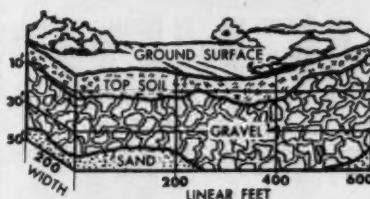


### Double Tip Holder Allows Parallel Cuts

With Harris's adjustable twin tip holder, the TH-98, a welder can make two simultaneous cuts within a spread of 1½ in. to 12 in. from one machine cutting torch. The accessory operates on any gas on all model 98-2 Harris torches.—The Harris Calorific Co., 5501 Cass Ave., Cleveland 2, Ohio.

Circle 328 on Reader Service Card

## .. determine SUB-SOIL LAYERS



Model 274M  
"Michimho"  
ELECTRO-GROUND

### Shows

#### Type of Material, Location and Quantity

Complete determinations of sub-soil layers are made with this 20-pound instrument. Drive the short test rods into surface earth and employing the internationally accepted "Barnes Layer" method . . . location and composition of layers 100-ft. or more below the surface can be accurately plotted.

- Cuts Costs
- Saves Time
- More Accurate Bids
- No Drilling
- No Dynamiting
- One-Man Instrument Operation

Whether locating gravel deposits, seeking data on bedrock in cut areas, or determining sub-soil stability for construction plans . . . the Model 274M ELECTRO-GROUND will quickly provide dependable data. Write for complete information.

**LOW  
PRICE...only \$575<sup>00</sup>**  
Saves its cost on one job!

### Write for

New Manual E-63  
containing complete  
operating data

1-355



ASSOCIATED RESEARCH,  
Incorporated

3746 W. Belmont Avenue • Chicago 18, Illinois

Circle 197 on Reader Service Card

*Because versatility counts*

# HENDRICKSON BROS. COUNTS ON MACKS





**Macks move the earth**—Hendrickson Bros. uses these versatile B-42S Mack dumpers on this earth moving project at Heckscher State Park, Long Island. Dependability makes Macks first choice with experienced operators.

On fast-changing Long Island, N. Y., Hendrickson Bros., Inc. takes on a unique "mix" of construction projects impossible for a less versatile organization. From its Valley Stream, Long Island headquarters, Hendrickson supervises operations ranging from storm sewer projects to major super-highway construction . . . from asphalt paving to involved railroad grade crossing eliminations in busy suburbs of Greater New York City.

Hendrickson's highly regarded reputation for "getting the job done" is due in part to its insistence on working with quality equipment. As Milton A. Hendrickson, President, puts it, "Construc-

tion jobs demand a lot of a truck. We use Macks because we're sure they'll do each job the way we want it done. To our way of thinking, an investment in a Mack is one that pays off."

Mack trucks pay off because of Balanced Design—the exclusive Mack concept in which every major component is *Mack built* to work together for the highest efficiency and long life. Engines, clutches, transmissions, axles, drives—all major components are *made by Mack* for Mack trucks alone . . . made to the highest standards of the industry to work together for maximum efficiency and long life.

Whether you use one truck or dozens, you'll find a profitable difference in using Macks. Your Mack representative is qualified by knowledge and experience to help you determine the Mack models that most economically meet your trucking needs. Mack Trucks, Inc., Plainfield, New Jersey. Mack Trucks of Canada, Ltd., Toronto, Ontario.

8847

**MACK**  
FIRST NAME FOR  
**TRUCKS**

**Good going or bad**—Speeding down a stretch of new parkway or slogging off highway to the dump site, Macks are assured maximum traction, thanks to the exclusive Mack Balanced Bogie with automatic Power Divider interaxle differential, an example of all-around Mack versatility.



# new tower crane measures up to highest hopes

The Bucyrus-Erie Mark I-50, the first American-built tower crane, has lived up to expectations—and then some—on its first job. Here are some of its accomplishments on the construction of a 15-story apartment building by Moss Construction in Los Angeles, California:

- ★ It has cut six months from the original 18-month completion estimate.
- ★ It has cut labor costs by 24 percent.
- ★ It has eliminated concrete buggies and buggy runways.
- ★ Early completion has accounted for substantial savings in interest on borrowed money.

## This is how it works

The new Mark I-50 combines the reach of a truck or crawler crane with the vertical-lift feature of a construction elevator — then adds new advantages neither can match. It can stand at point "A," pick up a load from any spot within a 240-ft-diameter circle, "B," and deliver it to point "C" or anywhere else on the structure. There is no need to re-handle material as with the elevator . . . nor to back off to point "D" as with a conventional crane. Mounted on 16-ft-gauge track, the Mark I-50 can "pick and carry" to service almost any size or shape building.

For full details, write  
Bucyrus-Erie Company,  
South Milwaukee, Wisconsin.

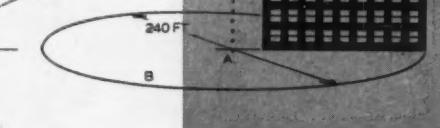
**BUCYRUS  
ERIE**

most respected name in the field

8761

◀ Circle 199 on Reader Service Card

200



Circle 200 on Reader Service Card

## New Product Briefs

For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.

**ARC WELDER**, 125 amp, weighs only 45 lb and will weld anything from light sheet metal to  $\frac{1}{2}$ -in. plate. No special electrodes are required. The unit operates from any 115 to 230-v ac line.—Bren/Weld Sales, Inc.

Circle 333 on Reader Service Card

**STEAM CLEANER** features 100 gph pump capacity and offers choice of oil or gas burner. The 750 Series Hypressure Jenny steam cleaner measures  $48\frac{1}{2}$  in. in length, 38 in. in height. Weight: 340 lb.—Homestead Valve Mfg. Co.

Circle 334 on Reader Service Card

**GEARED HAND RIVET GUN**, the Split Champ AP-7, accommodates blind type rivets from  $\frac{1}{8}$  in. to  $\frac{3}{16}$  in. in diameter, up to  $\frac{3}{4}$  in. in length.—Mid-American Mfg. Co., 1919 Champa St., Denver, Colo.

Circle 335 on Reader Service Card

**TENSION CONTROL WRENCH** is available in two models: the 18B-7T with rated capacity of  $\frac{3}{4}$  in. and the 18B-9T with rated capacity of  $1\frac{1}{4}$  in.—Gardner-Denver Co.

Circle 336 on Reader Service Card

**IMPACT WRENCH**, air operated, has 2-in. capacity. The CP-616 is equipped with a roll-type side throttle handle and a dead handle.—Chicago Pneumatic Tool Co.

Circle 337 on Reader Service Card

**TIG WELDING OUTFITS**, the Tig-Twin kits, contain standard Heli-arc apparatus. The HW-17 kit is air-cooled and has 130-amp capacity. The HW-20 kit is water-cooled and has 200-amp capacity.—Linde Co., Div. of Union Carbide.

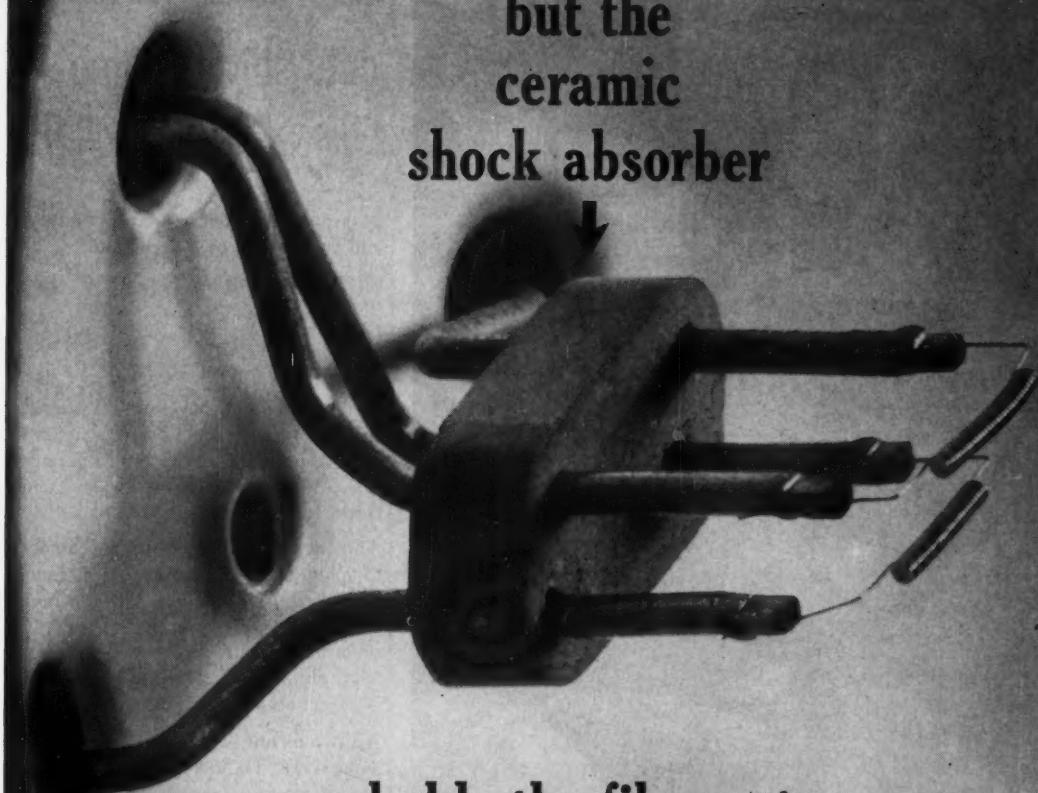
Circle 338 on Reader Service Card

**TWO-WAY RADIO**, the 50-w power output Transicom, can be used in the 25-54 mc band and is priced at \$449. A 25-w version sells for \$395.—DuMont Laboratories, Div. of Fairchild Camera and Instrument Corp.

Circle 339 on Reader Service Card

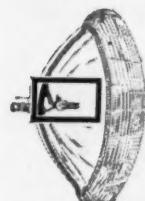
**CONSTRUCTION METHODS**

This General Electric  
lamp is being  
vibrated violently,  
but the  
ceramic  
shock absorber



holds the filaments  
steady as a rock!

Enlarged Unretouched Photo



Even though this new General Electric lamp is being vibrated hundreds of times per second, the filaments don't budge a hair. That's why this G-E construction machinery lamp can last up to three times as long as the old style sealed beam lamps you're now using. The new ceramic shock absorber keeps practically all road shock and engine vibration from the filaments.

Yet these new General Electric lamps cost no more than the old style sealed beam lamps. Why not try some now.

Ask your lamp supplier for the new G-E construction machinery lamps with the ceramic shock absorber . . . the lamps that last longer but cost no more. These are the headlamps: #4480 (12 volt) and #4880 (24 volt) and floodlamps: #4478 (12 volt) and #4578 (24 volt). General Electric Co., Miniature Lamp Dept. M-122, Nela Park, Cleveland 12, Ohio.

*Progress Is Our Most Important Product*

**GENERAL**  **ELECTRIC**

Circle 201 on Reader Service Card

# "Time study" TORQMATIC



## 3-SPEED

cuts shifting time—  
cuts shop time, too

Make a loader operator's job simpler  
and chances are he'll do it faster.

Make a mechanic's job simpler and he'll  
do it faster, too.

And that's just what "Time Study"  
TORQMATIC 3-speed transmissions do.

First place, they have only 3 speeds  
where other hydraulic transmissions  
have 4—naturally, the loader operator  
makes his machine crowd, dig, load and  
travel faster.

And they're far simpler for mechanics  
to maintain, too. Gears, for instance,  
can be replaced in about 4 steps where  
other hydraulic transmissions need 20  
or more. A leading tool manufacturer  
lists only 2 special tools for TORQMATIC  
—15 for another hydraulic transmission.

And overhauls on "Time Study"  
TORQMATIC DRIVES come around far  
less often, too. *In fact, "Time Study"*  
*TORQMATIC is designed to need no  
major service for two engine overhauls.*

Faster time on the job, less time in the  
shop—two big reasons why 9 out of 10  
loader manufacturers use TORQMATIC  
DRIVES. Details? Write Allison today.

Allison Division of General Motors  
Indianapolis 6, Indiana

In Canada: General Motors Diesel Ltd., London, Ontario

**Allison** 

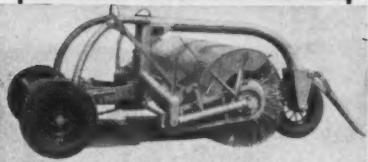
**TORQMATIC®  
DRIVES**

*THE MODERN DRIVE FOR  
MODERN LOADERS*

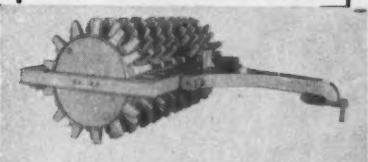
Circle 202 on Reader Service Card

# Grace

ASPHALT  
AND COMPACTION  
EQUIPMENT



Roadsweepers.



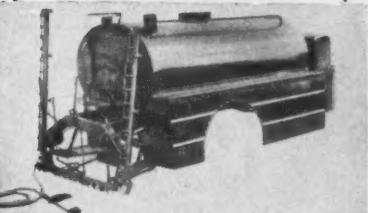
Sheepsfoot rollers



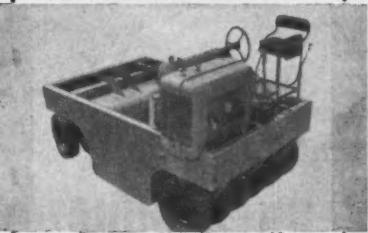
Chip spreaders



Circulating asphalt heaters



Asphalt Distributors



Pneumatic rollers, self-propelled or traileable

**W. E. GRACE MFG. CO.**

6100 S. Lamar St., Dallas, Tex.  
Circle 260 on Reader Service Card

## NEW PRODUCT BRIEFS . . .

For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.

**GAS-SHIELDED METAL ARC** welding package, the Aircomatic MiGet, contains a AH-20-E gun and a CAV 200 amp dc power source.—Air Reduction Sales Co., Div. of Air Reduction Co.

Circle 340 on Reader Service Card

**TUBING BENDERS** are available in six sizes from 3/16 in. through 1/2 in. o.d. Calibrations on the forming rolls are graduated in 45-deg angles.—The Ridge Tool Co.

Circle 341 on Reader Service Card

**STEEL RACK**, 48 in. wide, for storing tires consists of four vertical T-posts supporting several pairs of horizontal tire bars attached at two levels.—Penco Div., Alan Wood Steel Co.

Circle 342 on Reader Service Card

**TROUGHING IDLER**, Style L, for rope stringer conveyor systems offers easy lubrication. Six bearings are lubricated from one grease fitting.—Hewitt-Robins.

Circle 343 on Reader Service Card

**AIR COMPRESSOR**, Model 242FGT, can be mounted on a service truck. The compressor is mounted on a 30-gal receiver and delivers air at either 130 or 175 psig.—Ingersoll-Rand.

Circle 344 on Reader Service Card

**SABRE SAW BLADES**, available in both coarse and fine tooth for metal and wood cutting, are supplied with two blades in a plastic sleeve package.—G. W. Griffin Co.

Circle 345 on Reader Service Card

**STEEL CAP** fits on exhaust stacks from 1 to 6-in. o.d. and prevents rain, snow, dust, insects from entering. The Weathercap is hinged to automatically open at first sign of stack pressure.—Anthes Div., Gleason Corp.

Circle 346 on Reader Service Card

**TRENCHER TOOTH**, PENO No. 35 Wisdom Tooth, is secured to a T35 adaptor shank by a patented Rubber-Lock that permits free fit between tooth and shank.—Peterson Engineering Co., Inc., Santa Clara, Calif.

Circle 347 on Reader Service Card



## THE CARE AND REPAIR OF CLAMSHELL BUCKETS

**WANT TO KNOW:** How to make Clamshell Buckets last longer, operate better? How to weld and otherwise repair them regardless of the material from which they are made? How to improve cable life? How to reeve for different kinds of jobs? How counterweights can increase the opening speed and power? How to adjust to prevent opening shock and hinge stop impact?

### Write for free 40-page book

that gives these and many other facts on the use and maintenance of Clamshell Buckets. Ask for Bulletin 2373-R. Blaw-Knox Company, Pittsburgh 38, Pennsylvania.



**BLAW-KNOX**

Clamshell Buckets

Circle 203 on Reader Service Card

Circle 204 on Reader Service Card ➤

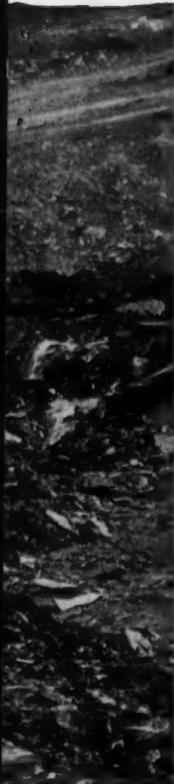
# "EUC" TC-12 ..



Your Euclid dealer will be glad to show you what a TC-12 can do in stepping up production and protecting profits on ripping work.

# ... Best Ripper, Bar None!

**Before you drill or shoot . . . be real sure that a TC-12 can't do the job**



With up to 35% more net h.p. and far more work capacity than other "big" crawlers, the Euclid TC-12 has almost unbelievable ripping ability. On job after job, full-power shift TC-12's are ripping rock that the biggest competitive tractors can't handle.

This unmatched ability to rip tough materials has greatly extended the use of scrapers and cut earthmoving costs on a wide range of work. On jobs that would ordinarily call for drilling, shooting and shovel loading, a TC-12 with ripper often permits the use of scrapers and provides a big saving in yardage costs. Equipped with dozer and ripper, the "Euc" is a versatile tractor capable of doing more work on any job . . . and doing it faster at lowest possible cost.

- ▲ **More weight and net h.p.  
(100,000 lbs. — 425 total net h.p.)**
- ▲ **Better Balance and Tractive Ability**
- ▲ **Rugged Design of Rippers**
- ▲ **Complete line of ripping attachments**



## A new answer to "is it rippable?"

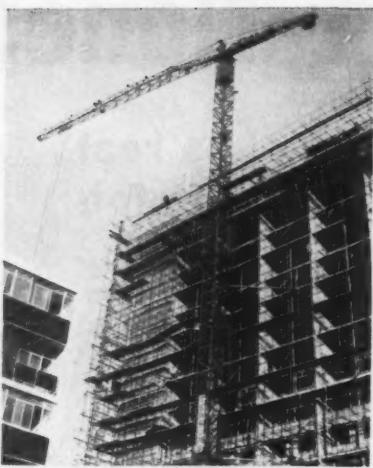
Prior to the availability of the big Euclid TC-12, material that couldn't be ripped by other tractors had to be drilled and blasted for shovel loading or dozing. Now with the power and traction of the Twin Crawler, you can rip rock and other material that simply isn't rippable with even the biggest competitive tractor. Here are a few of the jobs where a TC-12 can cut costs to new lows for tough materials:

*Airport Construction... Highway Cuts  
Mines and Quarries... Missile Bases  
Dam Construction... Industrial Grading  
Pipeline Work... Logging Haul Roads*



**EUCLID**

DIVISION OF GENERAL MOTORS, HUDSON, OHIO  
Plants at Cleveland and Hudson, Ohio and Lanarkshire, Scotland



A RECORD model 805 (static) on the construction of 28 story apartment

## How The Record Tower Crane Is 10 Years Ahead

- Choose from 46 different models
- Gives 3-in-1 design
  - Free traveling
  - climbing
  - static (inside or outside construction)
- Eliminates the cost of rehandling materials
- Place the load exactly where required, and step up production, cut construction time, and reduce labor costs by 25%.

Using this unique type of lifting and placing, the RECORD CRANE can be used on any type of construction or building such as reinforced concrete structures, steel frame buildings, precast concrete erections, etc.

ALL RECORD Climbing Cranes can lift capacities from 3,360 lbs. to 35,000 lbs. . . . the largest capacities of any climbing crane in the world.

Our hydraulic telescopic and climbing devices have no equal for design and safety. Our experience is world wide. OUR EXPERT ADVICE IS AVAILABLE NOW.

For complete technical information—write or phone

### BRIERE (USA) CORP.

55 West 42nd Street  
New York 36, N. Y.  
Phone: LW 4-0580  
Sole Distributor for U.S.A.

Circle 206 on Reader Service Card

## NEW PRODUCT BRIEFS . . .

For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.

**PLANETARY WINCHES** are available in four models ranging from 10,000 to 90,000 lb. The Carco "P" series accommodates mechanical, electrical or hydraulic drives.—Pacific Car and Foundry Co.

Circle 348 on Reader Service Card

**TIRE**, the Steel Protected Industrial Pneumatic, has two piles of steel cables imbedded in the rubber beneath the tread and is invulnerable to almost all puncturing objects.—B.F. Goodrich Co.

Circle 349 on Reader Service Card

**HYDRAULIC GUN** is capable of setting up to 1,200 POP rivets an hr. The Model C requires 75 psi air pressure and weighs only 2 lb.—POP Rivets, United Shoe Machinery Corp.

Circle 350 on Reader Service Card

**NUT GRIPPER** for crawler track work has self-locking grip that holds nut with 7,000-lb clamping force. Adjustable jaws accommodate nuts from  $\frac{1}{2}$ -in. to 2 in. across the face.—Rodgers Hydraulic, Inc.

Circle 351 on Reader Service Card

**BATTERY CHARGERS** with positive protection against damage to alternators are available in eight 6/12-v models from 80/45 to 100/60-amp output.—Fox Products Co.

Circle 352 on Reader Service Card

**POISON IVY, OAK, SUMAC** combatant, Bullard's Formula, is packaged in 1-oz non-breakable plastic bottles, three to a double unit pack.—E. D. Bullard Co.

Circle 353 on Reader Service Card

**AIR CLEANER**, the Pamic, is available in 12 standard sizes for truck, tractor, and stationary engines ranging in power from 10 to over 1,000 hp.—Farr Co.

Circle 354 on Reader Service Card

**SQUEEGEE PICK-UP ATTACHMENT** for Models 610 and 620 wet-dry vacuum cleaners is 28 in. wide and is equipped with a 22½-in.-long hose.—Clarke Floor Machine Co., Div. of Studebaker-Packard.

Circle 355 on Reader Service Card



## FLYGT PUMP DEWATERING METHOD ENABLES GRIFFITH CO. TO GET BID, CUT COSTS

Low cost dewatering with FLYGT submersible Electric Pumps was an apparent major factor enabling Griffith Co. of Los Angeles to successfully contract the Southern California Ventura By-pass Freeway Project. Bidding on this \$8,209,000 job was so competitive that costs had to be cut to the bone.

When Griffith Co. began its multi-million-dollar elimination of the Pacific Coast Highway U.S. 101 bottleneck through the city of Ventura, the contractors were faced with unexpectedly severe water intrusion at the borrow area — a 75 acre basin located but a short distance from the ocean shore. They met and licked the problem with a peripheral series of 25 Model B80L 3" FLYGT Electric Submersible Pumps.

Supplied by Gridley Equipment Co. of Los Angeles, the 330 GPM FLYGT Pumps were submersed around the pit area in 50-foot cased wells set approximately 300 feet apart. In little more than 30 days, despite greater water intrusion than originally anticipated, these FLYGT Pumps effectively lowered ground water to a point where excavation could begin.

FLYGT Electric Submersible Pumps range from  $\frac{1}{2}$ " 85 GPM to 8" 3100 GPM capacities; heads to 220' — higher in tandem. The FLYGT Model B80 1½" Pump is now available in a 110 volt Model, as well as 220 volt single phase and 220/440 volt three-phase versions. The new 110 volt Model draws less than 13 amperes, allowing it to be operated from most house currents and portable light plants. Also available is the new 4" FLYGT CS-100 Sewage and Slurry Pump, a heavy-duty, high-capacity Pump capable of handling sludges, slurries, silt, clay, weeds, and up to 2" solids without difficulty, and the new FLYGT Bibo 3" COMPACT, weighing only 88 pounds and delivering 20,000 GPH.

**FLYGT**  
PUMP BETTER ELECTRICALLY  
— USE FLYGT!

WESTERN SALES & SERVICE

**Stanco**  
MFOS. & SALES INC.

1666 Ninth St. (Corner of Olympic & Ninth)  
Santa Monica, California

Circle 261 on Reader Service Card  
**CONSTRUCTION METHODS**

*Here is a plan to help you*

# REDUCE SUFFERING AND TRAGEDY

*With it, your company can **SAVE PRECIOUS LIVES**, while  
**CUTTING COSTS DUE TO ABSENTEEISM** by as much as  $1\frac{1}{3}$  to  $1\frac{1}{2}$ !*

Together, American management and labor have done a remarkable job of reducing the incidence of industrial accidents. In-plant safety campaigns have been so effective that today it is *nonwork accidents* that cause the bulk of lost lives and manhours in our economy.

The National Safety Council has developed a plan to reduce these accidents. Not only will it save lives and prevent crippling injuries, but it will add significantly to the efficiency and net profits of companies which put it into operation.

Let's say you're an average company or corporate unit doing \$1 million in sales a year. Your net is around \$73,000. National Safety Council figures show that the average nonwork accident costs employers about \$72. (You can determine *your* costs with the Council's new nonwork accident report system.) Ten such accidents can cost \$720—or about 1% of your net profit. Prevent those accidents and you can *add 1% to your net!* Prevent twenty—and add 2% to net!

*Experience shows that a reduction of nonwork accidents*

*by 30% is possible!* One large company with an excellent in-plant safety record has *cut nonwork accidents by  $\frac{1}{3}$*  with its off-the-job safety program! It's employee's rate for motor vehicle fatalities stands 85% below rate for all U.S. workers! And its already low in-plant accident rate came down 50 per cent!

*Here is a rewarding endeavor that pays immeasurable dividends in human and employee relations—as well as an important untapped source for cost control.* You can institute this kind of program in your company. Send the coupon for a copy of our booklet "The Challenge to Management of Off-the-Job Accidents." It will show you how to determine your non-work accident costs, as well as many tested ways to reduce this steady waste of lives and profits. Send the coupon today.



*Howard Pyle*

HOWARD PYLE  
President, The National Safety Council



*Published to save lives  
in cooperation with  
The Advertising Council and  
The National Safety Council*



**SUPPORT YOUR LOCAL  
SAFETY ORGANIZATION**

THE NATIONAL SAFETY COUNCIL  
425 NORTH MICHIGAN AVENUE, CHICAGO 11, ILL.  
Please send me a copy of your booklet "The Challenge to Management of Off-the-Job Accidents." I want to learn how my company can save lives while cutting costs.

NAME \_\_\_\_\_  
TITLE \_\_\_\_\_  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_



A big-muscled weight lifter and mover powered by a Kohler K91 engine — the labor-saving West Brick Buggy for carrying and hoisting building materials.

## KOHLER ENGINES

**out-slug rugged conditions**

Kohler engines have what it takes to take on tough jobs . . . Their smooth-running reliability saves down-time, builds up cost-savings on construction equipment.

Sturdy cast iron construction resists punishment . . . Hot spark means quick all-weather starting . . . Large bore and short stroke design mean less friction, more usable power, longer life.

Sold and serviced nation-wide by authorized distributors and dealers who stock and install parts . . . Manufactured for over 40 years to standards of world-famous Kohler quality.

From 4 to 24 H.P. Write for illustrated booklet.

KOHLER Co. Established 1873 KOHLER, WIS.

## KOHLER OF KOHLER

ENAMELED IRON AND VITREOUS CHINA PLUMBING FIXTURES • ALL-BRASS FITTINGS • ELECTRIC PLANTS • AIR-COOLED ENGINES • PRECISION CONTROLS  
Circle 208 on Reader Service Card

# Sales and Service

Equipment purchasing and servicing takes less time when you know who and where to call. Keep advised of new distributors, sales personnel and other activities.

## Distributor Appointments

**Ampco Metal, Inc.**: D&R Welding Supply Co., Decatur, Ill., has been appointed a distributor of Ampco Weldrod products.

**Louis Melzassard**: Price & Rutzebeck of Hayward, Calif., will market spot welders manufactured by Monaco's Louis Melzassard through standard trade channels under the name of LM Spot Welders.

**The Yale & Towne Mfg. Co.**: The Yale Material Handling Div. has named the Simplex Sales Co., Inc., Hialeah, Fla., a distributor for Yale industrial lift trucks and tractor shovels.

**Gar Wood Industries**: Shreveport Equipment Co., Inc., Bossier City, La., and W. T. Walsh Equipment Co., Cleveland, have been designated dealers for the complete line of Gar Wood-Buckeye ditchers, spreaders, and graders.

**Spray-Bilt, Inc.**: Atlan Enterprises Limited, Ottawa, has been appointed distributor for Canada.

**Koehring Co.**: The Kwik Mix Co. has named Aztec Equipment Co., Phoenix, distributor for Arizona. The Parsons Co. has appointed Capitol Road Machinery Co., Columbus, Ohio, and John C. Louis Co., Inc., Baltimore, as distributors.

**Hyster Co.**: Martin A. Ceder, Inc., Louisville, has been appointed a dealer for Hyster industrial trucks.

**Highway Equipment Co.**: Sheehan-Bartling, Inc., Sioux Falls, has been named distributor for South Dakota.

**Standard Steel Corp.**: J. B. Hunt & Sons, Inc., Raleigh, has been named dealer for Standard asphalt plants in North Carolina.

**General Motors**: The Detroit Diesel Engine Div. has named the Pacific Diesel Power Co., Portland, distributor in western Oregon and southern Washington.

**FWD Corp.**: The capital stock of Wagner Tractor, Inc., of Portland, Ore., has been purchased by FWD Corp. of Clintonville, Wis. Wagner produces four-wheel-drive tractors and two models of compactors, as well as other materials handling machines. It will be operated as a wholly owned subsidiary of FWD.

**Hobart Brothers Co.**: Short workshop courses in welding are being conducted by Hobart Brothers Technical School, Troy, Ohio. The school is run on a twice-a-month basis with one-week courses. Classes are open to management people interested in advanced welding techniques. Registration Bulletin DM-168 includes a description and schedule of classes.

## On the Sales Front

**Hydraulics, Inc.**: Eugene H. Libby has been named sales manager.

**H. K. Porter Co.**: The Disston Div. has appointed Robert W. Brady product sales manager and Robert O. Phillips general sales manager.

**Universal Form Clamp Co.**: Charles Sharav has been named district sales manager for Illinois and surrounding states.

**Oliver Corp.**: Howard B. Nitteberg has been named a territory manager and will work out of Omaha.

**The General Tire & Rubber Co.**: Barney Crowe has been designated southwestern regional manager. Leon L. Meyer has been appointed manager of truck tire sales of the Atlanta district, and Neil M. Andrew has been named Charlotte district manager.

## Special Mention

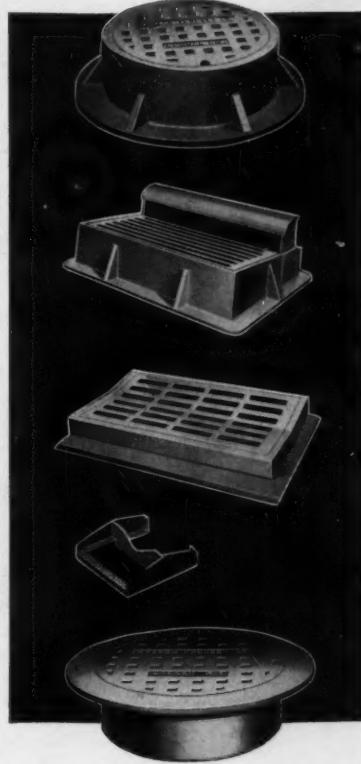
**FMC Corp.**: On July 1st the name of the Food Machinery and Chemical Corp. was changed to FMC Corp.

**Ingersoll-Rand Co.**: Aldrich Pump Co., Allentown, Pa., has been acquired by Ingersoll-Rand and has become a wholly-owned subsidiary.

# CASTINGS?

That's all we make!

And on hand for immediate delivery are thousands of standard designs such as -



What's more, we have

**15,000**

patterns from which construction castings can be produced fast.

Our 168 page catalog of Gray and Ductile Iron castings will be sent promptly upon request.



NEENAH FOUNDRY  
COMPANY  
NEENAH • WISCONSIN

Chicago office: 5445 N. Mesa Ave., Chicago 31

Circle 209 on Reader Service Card

# Fir plywood helps solve problem on giant



## SCIOTO DOWNS RACE TRACK

LOCATION: Columbus, Ohio

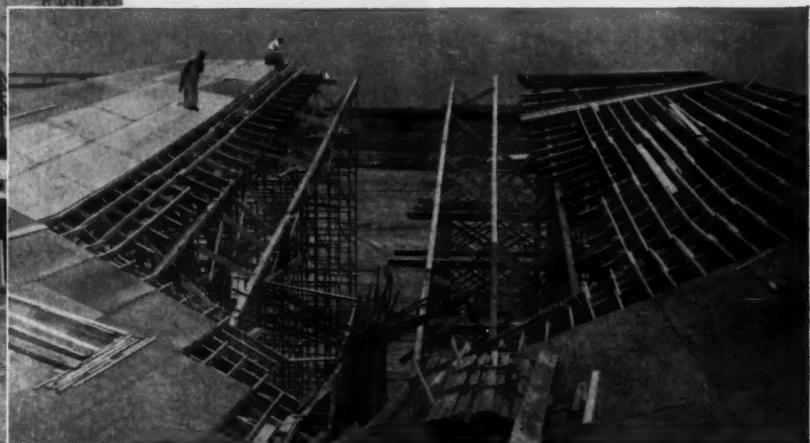
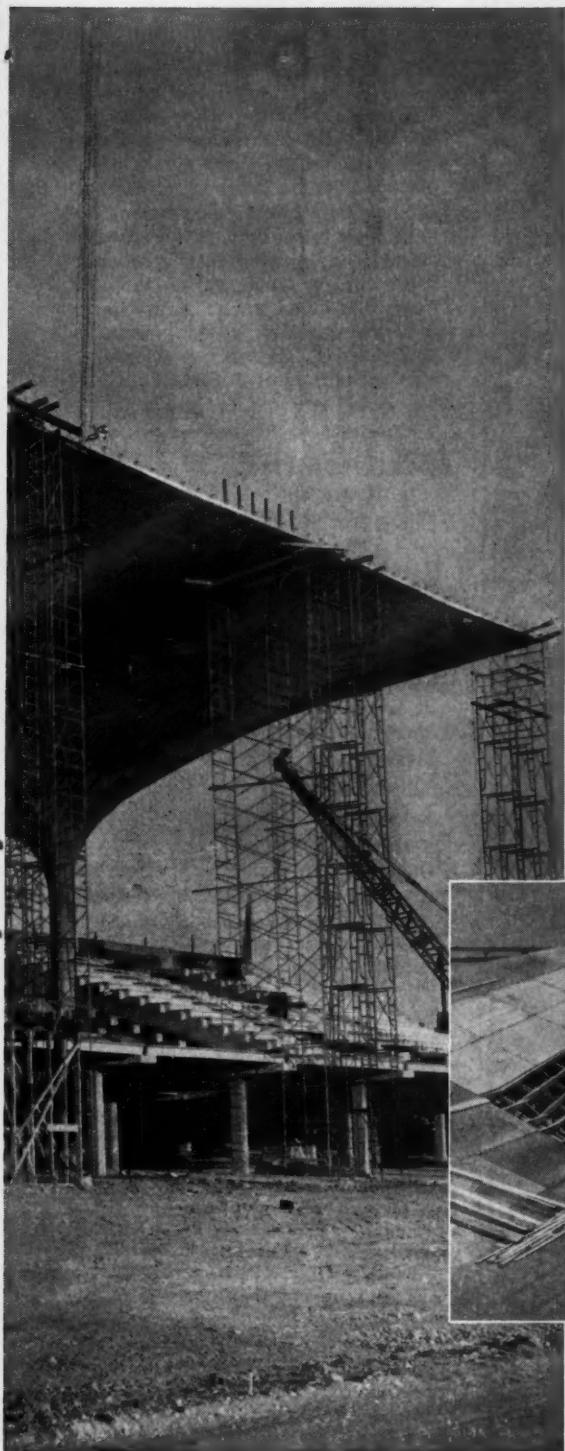
ARCHITECTS: Kellam & Foley, Columbus

STRUCTURAL ENGINEERS:

Gensert, Williams & Associates, Cleveland

CONTRACTOR: Sheaf Construction Co., Columbus

# complex forming concrete umbrella roofs



Grandstand roof forms were of  $\frac{1}{4}$ " fir plywood over a grid of 2x4's and 2x6's. Panels adapted readily to required curves, yet joints were tight and final concrete surface was smooth and even. Office building behind grandstand and clubhouse at side have continuous folded plate concrete roofs. They were formed against plywood panels previously used on grandstand roof.

Circle 211 on Reader Service Card

PLYWOOD'S UNIQUE ADAPTABILITY as concrete form material simplified a complicated roof construction job at the Scioto Downs race track, Columbus, Ohio. At the same time, plywood created smooth concrete surfaces and kept costs low.

The striking grandstand roof is a series of huge hyperbolic-paraboloid concrete shells. Each 61 x 116-ft. section is supported by a 44-ft. column. The clubhouse and offices have thin-shell concrete folded plate roofs.

Plywood was shaped so easily to the complex curvatures of the grandstand roof, and made such tight joints, that the contractors found it needed no liner. Original specifications had been for lumber or plywood backing faced with hardboard for surface smoothness. But a single layer of  $\frac{1}{4}$ " plywood to do both jobs resulted in a smooth, fin-free concrete surface, besides eliminating the labor and material cost of applying liner.

More savings came from plywood's ease of handling, which the contractors called a real cost cutter. And rate of re-use was exceptionally high. Panels stripped from the grandstand roof were used on the folded plates and were still good for many more times. There was only a four percent loss out of 10,000 sq. ft. of plywood.

## DOUGLAS FIR PLYWOOD ASSOCIATION

TACOMA 2, WASHINGTON

—a non-profit industry organization devoted to research, promotion and quality control



ALWAYS SPECIFY DFPA-QUALITY TRADEMARKED PLYWOOD. Concrete form grades include: INTERIOR PLYFORM®—made with moisture-resistant glue, gives up to 10-12 re-uses; EXTERIOR PLYFORM®—waterproof glue, gives up to 25 or more re-uses; OVERLAIRED EXTERIOR PLYWOOD—premium panel, forms smoothest concrete, gives up to 200 re-uses.

**this is a gamble...**

**McGOWAN PUMPS**  
are a sure thing!

It's tough enough to gamble on the weather when you are pressed for time on the job... but don't gamble on performance, buy the dependable McGowan Pump. Easy to operate, with lower operation costs plus the finest engineering features.

Your nearest McGowan Dealer has a complete line of pumps with capacities to handle every job. Your dealer, working with many contractors, has the experience to solve a variety of pumping problems. Call your McGowan Dealer today!



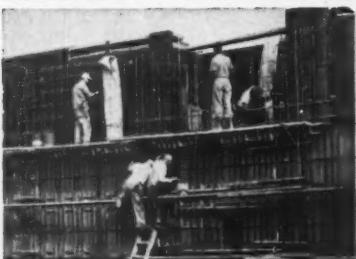
McGowan 33DL Lightweight  
Diaphragm Pump  
A.G.C. rated 4200 G.P.H. Capacity

## McGOWAN PUMPS

DIVISION OF LEYMAN MANUFACTURING CORP.  
10948 Kenwood Rd. • Cincinnati 42, Ohio

LOOK FOR YOUR  
NEAREST DEALER  
IN THE  
YELLOW PAGES.

Circle 212 on Reader Service Card



## INCREASED PROFITS with EFCO FORMS

- Save time, material, money.
- Steel faces assure lifetime service.
- Easy to handle and assemble.
- Available with return option.
- Free form erection drawings.

ECONOMY FORMS CORP.  
**MAIL TODAY**



ECONOMY FORMS CORP.  
Box 128-N, H.P. Station  
Des Moines, Iowa

Please send catalog on EFCO Steel Forms,  
and address of nearest sales office (there  
are 30 coast to coast).

Name.....  
Firm Name.....  
Address.....  
City..... State.....

Circle 262 on Reader Service Card

212

when you repower  
big machinery...



- input torque 150 to 2500 ft-lbs
- standard or engineered to order
- low-cost production, whether quantity is 1 or 100
- all gears alloy steel—heat-treated
- all shafts mounted on ball or roller bearings, precision aligned

come to  
**COTTA**  
for  
heavy-duty  
transmissions  
and  
speed reducers

diagrams, complete specs  
sent free on request



**COTTA**

TRANSMISSION CO.  
ROCKFORD, ILLINOIS

Circle 263 on Reader Service Card

## NEW Publications

These catalogs and bulletins from manufacturers contain useful information about construction equipment and materials. To obtain a copy of the items you want, circle the appropriate numbers on the READER SERVICE CARD just inside the back cover of this month's issue.

**TRACK REBUILDING**—A 16-p. catalog describes Victor equipment for rebuilding track assemblies. Machines covered include: automatic roller and idler rebuilders, an automatic grouser shoe and sprocket reconditioner, automatic track link welder, grouser bar welder, flux grinder, roller boring tool, roller flange flame hardener, roller and idler press, roller and idler grinder, pantograph, and accessories.—Victor Equipment Co., 844 Folsom St., San Francisco 7, Calif.

Circle 356 on Reader Service Card

**WELDING STEELS**—A 20-p. catalog on the welding of mild and alloy steels contains specs, operating characteristics, mechanical properties, and applications on McKay's mild steel and low hydrogen electrodes. Several pages are devoted to handy reference charts listing the recommended electrodes in the welding of trade name steels and ASTM carbon and low alloy steels.—The McKay Co., 1005 Liberty Ave., Pittsburgh 22, Pa.

Circle 357 on Reader Service Card

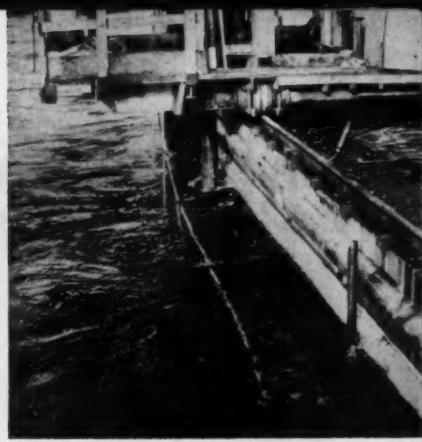
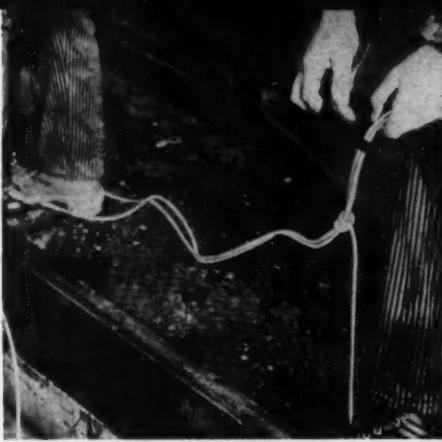
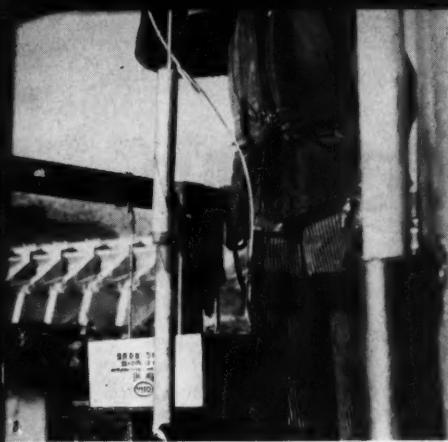
**ROLLER, IDLER REBUILDER**—Data on a completely automatic machine for hard-metal resurfacing of tractor, crane, or shovel rollers, idlers, and wheels are contained in Bulletin MI-402. The Dual Head Micro-Matic will accept rollers, idlers, and wheels up to 40-in. in dia. It has a lazy susan rotating table for holding rollers and loading them into welding station, and a balanced yoke that can be tilted to the best work position—Automatic Welding Co., 1005 Liberty Ave., Pittsburgh 22, Pa.

Circle 358 on Reader Service Card

**TUBE FITTINGS**—A reference circular of applications and data on Lenz's O-Ring Seal with separate slit-ring grip presents several solutions to difficult installation problems—The Lenz Co., Dayton 1, Ohio.

Circle 359 on Reader Service Card

**CONSTRUCTION METHODS**



Primacord was threaded through two 2" x 16" powder sticks. Charge was lowered through white aluminum tube shown protruding from iron pipe and then tamped into place. Plastic reinforced Primacord proved ideal for use as the downlines because of its ruggedness and water-resistant characteristics.

Working on the barge, a double line of Reinforced Primacord was laid out for the trunklines. Picture shows how tightly the single Plastic Reinforced Primacord downline was knotted. In spite of near-freezing weather, Primacord was readily pliable, and knots were easily tied. For extra security, the trunkline was taped.

After the downlines were tied in position, the Primacord trunkline was well weighted with rock at each end and lowered to the river bottom. Drilling, loading and stemming were done through a sand pot. Holes were 4'-4½" and were at 5' to 8' centers, depending on the estimated rock conditions and depth.

## PRIMACORD®

**helps solve underwater blasting problem and stray electric currents danger for Merritt, Chapman & Scott**

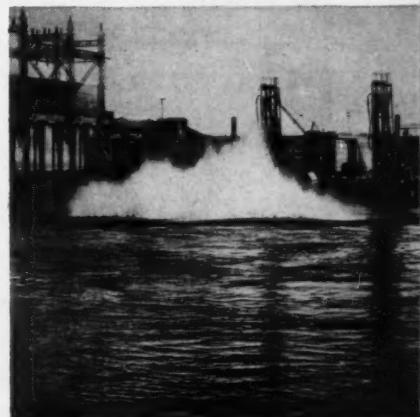
The Priest Rapids dam is located on the Columbia River in the Ellensburg-Ephrata area of Washington State, about 200 miles downstream from the famous Grand Coulee. Excavation of the power plant discharge channel could not be completed while the area was dry. Consequently, the rock breaking and excavation had to be done underwater, working from barges.

To add to the problem, the river current averaged approximately 5 miles per hour. The bottom was uneven, ranging from five to thirteen feet. The power plant was immediately adjacent and limited the size of the individual shots. And the danger of premature explosion caused by stray electric currents was increased by the needed electrical equipment on the barges.

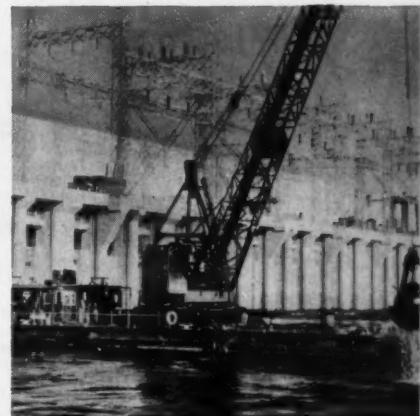
The problem was solved by using a double line of Reinforced Primacord Detonating Fuse for the trunklines and Plastic Reinforced Primacord for the downlines.

Primacord is so often the answer to difficult situations because of its many unique qualities. Primacord cannot be set off by stray electric currents — or by normal vibration, friction or shock. It is less sensitive than the explosive itself . . . detonates at a speed of almost four miles a second along its entire length . . . has a minimum initiating strength of a blasting cap at all points. It is simple, easy and *economical* to use.

These advantages make Primacord ideal for a wide range of underground as well as underwater blasting. And for primary and secondary pit blasting, too. Primacord is available in a number of standard and special types developed to meet varying needs. For further information, consult your explosives supplier or write



Effect of a light nine-hole blast. Drill barge has moved back. Nearness of dam and high-tension electric lines is clearly shown. The shot was fired using two electric blasting caps which were attached at the downstream end of the trunkline to prevent any possibility of cutoffs.



Dredge barge moved in following blast. Clamshell conveyed the blasted rock to dragline from which the material was loaded directly into trucks. In this manner, the entire discharge channel was dredged out to the required depth.

**THE ENSIGN-BICKFORD COMPANY**  
Simsbury, Connecticut • Since 1836



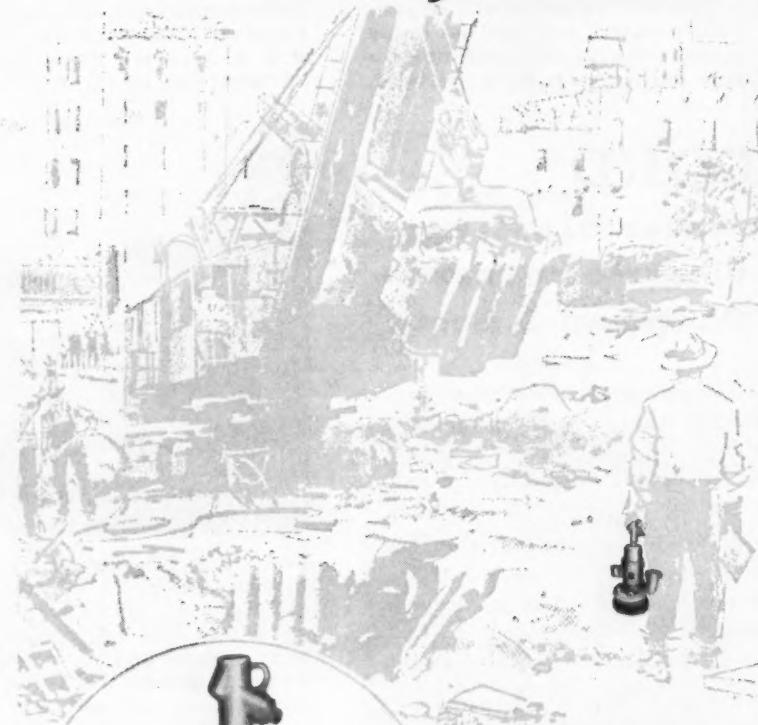
THERE IS A TYPE OF PRIMACORD® FOR EVERY TYPE OF BLASTING

Circle 213 on Reader Service Card

# NEW BANTAM PUMP



## ...a boon to contractors ...utility crews!



Ingersoll-Rand  
Size 225 Air  
Operated Sump Pump

an Ingersoll-Rand  
exclusive!

NEW—automatic  
constant  
lubrication of  
water seals from  
a pressurized  
grease reservoir  
in the housing!

An easy 34 lb. load for one man, and only 16 in. high, this new baby of the Ingersoll-Rand Pump Line can move 190 gallons per minute against a 15 ft. total head.

The new I-R 225 Pump is ideal for pumping water, oil, sewage or sludge out of sumps, trenches, manholes, tanks and bilges.

Other newly designed features include a more efficient and longer lasting multi-vane motor, stainless steel parts at critical locations to prevent corrosion, and a rugged alloy housing and impeller.

Standard equipment includes exhaust hose assembly, air strainer and air throttle valve.

For details or an on-the-job demonstration, call your nearby Ingersoll-Rand representative or write: Ingersoll-Rand, 11 Broadway, New York 4, N. Y.

## Ingersoll-Rand

11 Broadway, New York 4, N. Y.

Circle 214 on Reader Service Card

## NEW PUBLICATIONS . . .

For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.

**PIPE, TUBING, HOSE**—"How to Measure and Relate Pipe, Tubing, and Hose Sizes," a 16-p. booklet, supplies standard methods of measurement. It discusses both the similarities and the differences involved in measuring fittings and fluid-carrying lines. The booklet, No. 631, also discusses standard practices of measuring adapters and complete assemblies. — Aeroquip Corp., Jackson, Mich.

*Circle 360 on Reader Service Card*

### PORTABLE ELECTRIC TOOLS

—Seventy-two portable electric tools and more than 400 accessories are covered in a 34-p. buying guide. Included are specs, applications, and photos of the tools in use. The guide describes electric saws, sanders, drills, planes, routers, shapers, and grinders.—The Porter-Cable Machine Co., Syracuse 1, N.Y.

*Circle 361 on Reader Service Card*

**BUCKET ELEVATORS**—Catalog be-55, 84 pages, simplifies the selection and application of bucket elevator systems for bulk handling of materials. The booklet illustrates a wide selection of basic bucket elevator types, such as centrifugal discharge, perfect discharge, continuous bucket, gravity discharge elevator-conveyors, and pivoted-bucket carriers. —Webster Mfg., Inc., Tiffin, Ohio.

*Circle 362 on Reader Service Card*

**DIESEL MAINTENANCE**—Cummins' "Diesel Maintenance" manual, 91 pages, is divided into four sections: The Need for Maintenance, Scheduled Maintenance, Unit Replacement, and Trouble Shooting and Maintenance Control. Price: \$2.00—Cummins Engine Co., Inc., Columbus, Indiana.

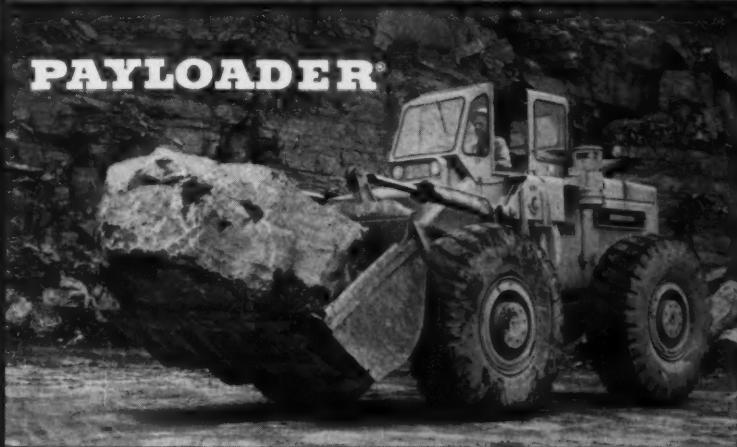
*Circle 363 on Reader Service Card*

**SLING CHAINS**—A catalog displays the entire line of Can-Alloy wrought iron and high-test steel sling chains. It contains a section on Campbell's Sentry sling chains and the new bell-type magnet assembly—Campbell Chain Co., York, Pa.

*Circle 364 on Reader Service Card*

## Model H-90B...doubles

### PAYLOADER®



### load-out production

**Operator says**, "We've been PAYLOADER users for ten years and have 10 now. The H-90B nearly doubles load-out production over the regular H-90. This is made possible by the additional engine power, faster all-around digging and no lazy periods in the loading cycle. The air brakes are much easier on the operator and the larger tires give better load-carry stability."

**Owner says**, "Our old H-90 showed a longer trouble-free life under steady, tough work conditions than other equipment. Our new H-90B is even heavier constructed for hard use, and with its bigger engine, plus a lot of work-increasing features, should help cut our costs to record low levels."

**Operator says**, "It's a pleasure to run this compared to the . . . . we have. Best front-end loader I have been on and I've been running loaders, dozers and cranes since 1936. It operates much easier—a wonderful machine."

**Owner says**, "This is the third PAYLOADER we've owned and we think it is one of the best front-end loaders made. It works fast in loading, which is essential in our work. It's very dependable—and it has to be to keep our fleet of trucks busy. We can't afford downtime."

**Your Hough Distributor says**, "Watch the H-90B work, or drive it yourself, and find out how stable, easy-operating and productive it is." It makes the most complete use of air and oil filters and seals to keep out dust and dirt and insure dependable, low maintenance performance; makes fullest use of power-assists and other features for safe, easy operation. It is available with 2½ to 5 yd. buckets—also "Drott 4-in-1" bucket and other useful allied equipment.

# HOUGH®

THE FRANK G. HOUGH CO.  
706 Sunnyside Ave.

Libertyville, Ill.

SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

Send complete data on H-90B  
PAYLOADER and all Allied Equipment

Name		
Title		
Company		
Street		
City	State	

7-B-2

*Circle 215 on Reader Service Card*

**"LUBRIPLATE,  
THE OUNCE  
OF  
PREVENTION"**

says  
**VULCAN IRON WORKS, INC.**  
of Chicago, Ill.

—a leading manufacturer  
of pile driving and  
extracting equipment

"For many years we have used LUBRIPLATE Lubricants for shop assembly, and have recommended them to our customers through your LUBRIPLATE Tag Plan. Our experience shows that if the proper lubricants are used from the beginning, there are fewer problems and parts replacements later. We consider LUBRIPLATE to be the best possible ounce of prevention." —  
H. G. Warrington, Vice-Pres.

**REGARDLESS OF THE SIZE AND  
TYPE OF YOUR MACHINERY,  
LUBRIPLATE GREASE AND  
FLUID TYPE LUBRICANTS WILL  
IMPROVE ITS OPERATION AND  
REDUCE MAINTENANCE COSTS.**

LUBRIPLATE is available in grease and fluid densities for every purpose... LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK" ... a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.



Circle 216 on Reader Service Card

**NEW PUBLICATIONS ...**

For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.

**ARC WELDING**—No. 166 "Hobart Arc Welding News," a 24-p. booklet, contains photographs and articles on manual and automatic arc welding processes.—Hobart Brothers Co., Troy, Ohio.

Circle 365 on Reader Service Card

**PAVER**—The Tribatch, largest capacity concrete paver made, is the subject of a bulletin. On-the-job photos of the paver, which has a 3-compartment mixing drum, are included.—Koehring Div., Koehring Co., 3026 W. Concordia Ave., Milwaukee 16, Wis.

Circle 366 on Reader Service Card

**WELDED CONNECTIONS**—

"Design of Welded Structural Connections," 92 pages, presents information on the arc welding process, the weldability of structural steels, distortion, the designs of connections by the elastic and plastic theories used in buildings and bridges, erection, welding to existing structures, and inspection. Price: \$1.00.—The James F. Lincoln Arc Welding Foundation, Cleveland 17, Ohio.

Circle 367 on Reader Service Card

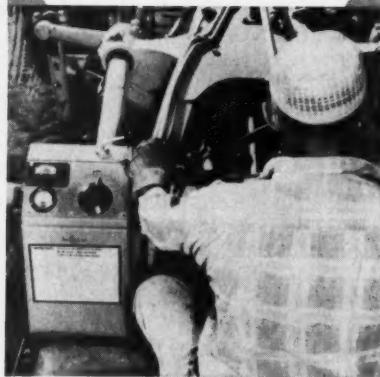
**RUSSIAN SOIL WORK**—Special Report '60 entitled "Soil and Foundation Engineering in the USSR," gives the impressions of seven American experts of current practice in this area in the USSR. Their information was obtained from visits to construction projects and research institutions and from papers given for their benefit by Russian scientists. Price: \$4.00.—Highway Research Board, 2101 Constitution Ave., N.W., Washington 25, D.C.

Circle 368 on Reader Service Card

**LIFT TRUCK**—A 6-p. bulletin covers the Hi-Lifter, a multi-attachment fork-lift truck designed primarily for outdoor use. Attachments available are front-end loader, standard fork, hydraulic lift arm and hook, pallet fork, vertical clamp arm, two sizes of concrete hoppers, fine-grading blade, and material transfer bucket.—Kwik Mix Co., Div. of Koehring Co., 235 West Grand Ave., Port Washington, Wis.

Circle 369 on Reader Service Card

**HELP YOURSELF  
TO  
CHEAPER GRADING**



**with  
PRECO  
BLADE CONTROLS**

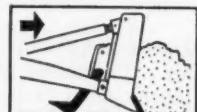
A well-known contractor who figured his grading at 7¢ a square yard on a recent project got the job done at 4¢ with PRECO-equipped Motor Graders.

He is not alone. Since introduced four years ago, the PRECO Automatic Blade Control has revised grading standards — UP in quality and DOWN in cost — for many successful firms. From roughing in to the most rigidly controlled fine grading, PRECO Blade Controls enable you to get the job done faster, more accurately, with fewer stakes, and at less cost.

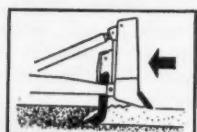
A PRECO is not a substitute for a good operator; it is an aid to him for better, cheaper grading.

Dependable, all-transistor PRECO Automatic Blade Controls are designed for use with Caterpillar and LeTourneau-Westinghouse Motor Graders. Help yourself to cheaper grading. Equip your motor graders with PRECO Automatic Blade Controls.

Gain additional profit by equipping your dozers with PRECO Back Rippers. Back ripping — the cheapest way to rip because it puts the backup trip to work — gives you two-way dozer production — forward and reverse. Eliminate "deadhead" reverse. Double dozer effectiveness. Equip your tractors with PRECO Back Rippers now.



**DOZE IN FORWARD**



**RIP IN REVERSE**

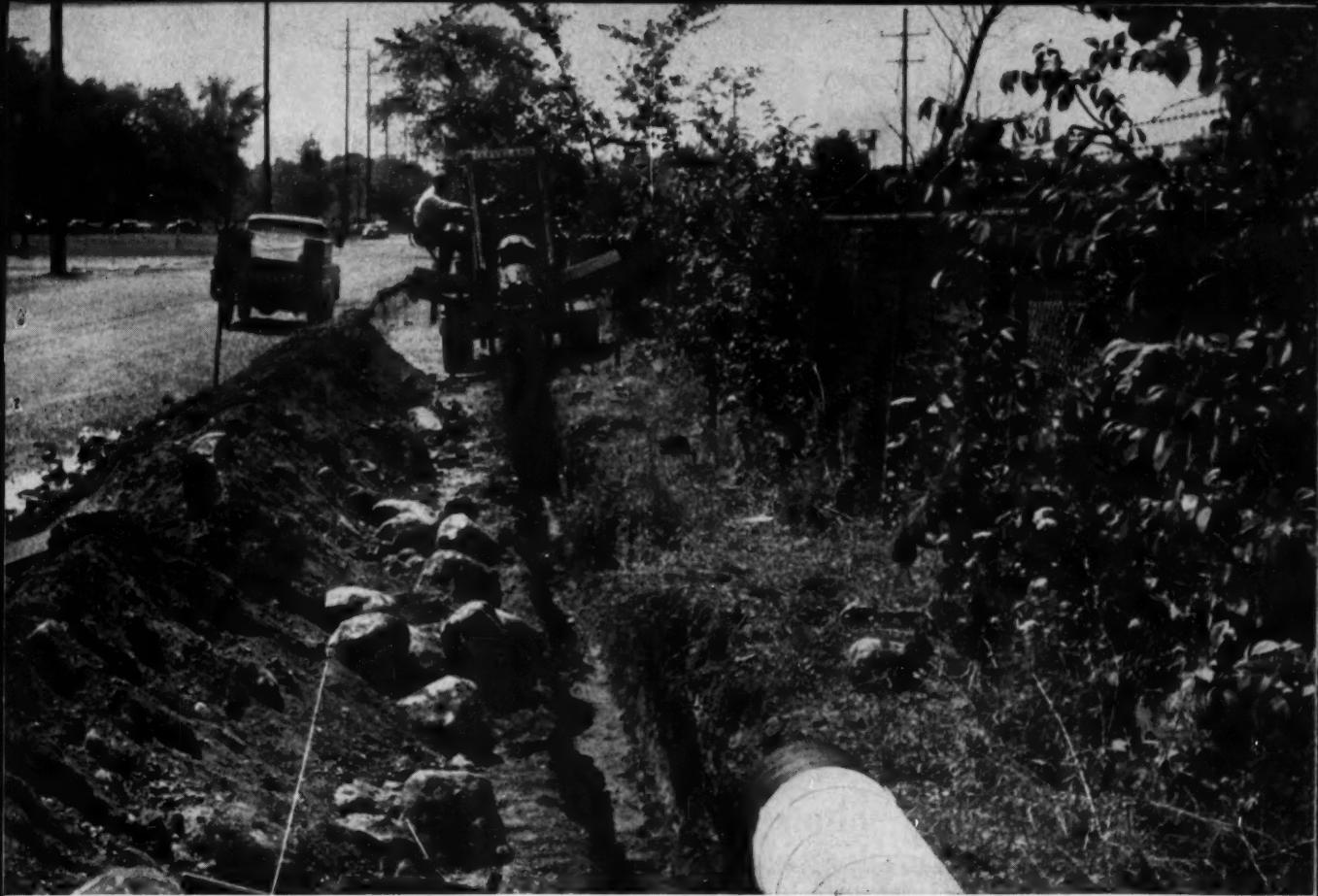
WRITE, PHONE, OR CABLE FOR ALL THE PRECO FACTS OR SEE YOUR PRECO DEALER

**PRECO**

INCORPORATED

6390 E. SLABSON AVE., LOS ANGELES 22  
CABLE ADDRESS: PRECO

Circle 264 on Reader Service Card  
CONSTRUCTION METHODS



## IN ROCKY SOIL - IN TIGHT QUARTERS, TOO - NOTHING DIGS TRENCH LIKE A CLEVELAND J™

**DEPENDABLE TRENCH PRODUCTION** in conditions like these takes a trencher that's built for tough digging, yet no bigger than it has to be, and able to dig up close to, and sneak by, trees, poles, fences and other side-obstructions. That's an exact description in every respect of a Cleveland J Trencher. On tough jobs or easy, in all soils and job conditions, Cleveland J's *dig more trench...in more places...at less cost...* because of Cleveland features like these:

- 4 digging-wheel speeds, over 30 positive crawler digging speeds—the right combination of power and speed for every soil and condition.
- Ample power—big 330-plus-cubic-inch engine.
- *The world's finest trencher crawlers*—1,000-hour lubricated, 100% anti-friction-bearing-mounted track with dual drive and support.
- Big 16" x 3" hydraulic steering brakes.
- V-conveyor with automatic side-to-side shifting
- no slow-down to sneak by side obstructions.
- Conveyor reversal and speeds up to 1,000 FPM with pulley-enclosed, dual hydraulic drive.
- Positive, fast, full-range boom hoist—keeps accurate grade, speeds set-in time around underground obstructions.
- Full job-visibility for the operator.
- 100% control of every operation at the operator's seat.

*There's a Cleveland J for every type and size of trench, from 13 to 30 inches wide, down to 7 feet deep. Check them now with your distributor.*



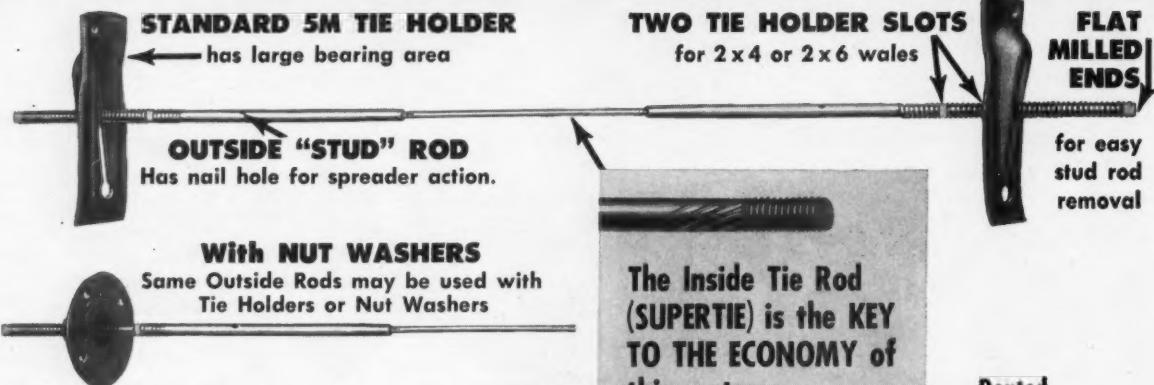
# CLEVELAND TRENCHER

THE CLEVELAND TRENCHER CO., 20100 ST. CLAIR AVE., CLEVELAND 17, OHIO  
Circle 217 on Reader Service Card

SUPERIOR'S NEW COMPACT, ECONOMICAL FORM TIE

# "SUPERTIE" Assembly

with Tie Holders or Nut Washers



The Superior SUPERTIE Assembly consists of two outside rods, two standard 5M tie holders, or two nut washers. Together with the high-strength Inside Tie Rod (SUPERTIE), this compact assembly offers great economy and versatility over conventional tying systems. The Outside Rod will accommodate either tie holders or nut washers on 2 x 4 or 2 x 6 wales. For easy removal the ends of the Outside Rod are flattened. Another feature, the nail hole, provides for fast and convenient form spreader action. Only the SUPERTIE, left in the concrete, is lost . . . the working parts of the assembly are reused again and again.

## TWO TIE HOLDER SLOTS

for 2 x 4 or 2 x 6 wales

FLAT  
MILLED  
ENDS

for easy  
stud rod  
removal

The Inside Tie Rod (SUPERTIE) is the KEY TO THE ECONOMY of this system.

There is no excess material. Has a fast double-lead thread for connection to outside stud rods—only 5 turns for full engagement.

Rented  
With  
Option to  
Purchase

This tie system has been designed for compactness, all excess weight and bulk have been eliminated, yet it has a Safe Working Load of 5,000 lbs. (7,000 lb. ultimate capacity.) Write for Bulletin SA-1.

SUPERIOR  
Heavy Duty  
Form Tie  
Assemblies

## TIILT-LOCK ASSEMBLY

For heavy duty forming—the Handle Washer slips over outside rod threads to wale—up to 9,000 lbs. safe working load—Ult. cap. 13,500 lbs. May be rented or purchased.

## NUT WASHER ASSEMBLY

For contractors that prefer a spun washer. A heavy duty type—capacities are the same as Tilt-Lock Assembly above. Also rented or purchased.

SUPERIOR Concrete Accessories, Inc.

9301 King St., Franklin Park, Ill. (A Suburb of Chicago)

New York Office  
39-01 Main St., Flushing 54, N. Y.

Houston Office  
4101 San Jacinto, Houston 4, Tex.

Pacific Coast Office and Plant  
2100 Williams St., San Leandro, Calif.

Circle 218 on Reader Service Card

## Advertisers' Literature

Listed below is free material offered in this issue's advertisements received up to June 15. To get the items you want, circle appropriate numbers on the SERVICE CARD inside the back cover.

**TIE ASSEMBLY**—The Supertie assembly system is detailed in Bulletin 610-3.—Superior Concrete Accessories.

*Circle 370 on Reader Service Card*

**SAMPLING**—S&H's complete line of soil sampling devices is featured in the new Bulletin 300.—Sprague & Henwood.

*Circle 371 on Reader Service Card*

**JAW CRUSHERS**—Bulletin 280 details jaw crushers.—Smith Engineering Works, Div. of Barber-Greene.

*Circle 372 on Reader Service Card*

**TWO-WAY RADIO**—A booklet presents information on the new RCA transistorized mobile radio.—Radio Corporation of America.

*Circle 373 on Reader Service Card*

**SUB-SOIL LAYERS**—Manual E-63 depicts No. 274M Electro-Ground for sub-soil analysis.—Associated Research, Inc.

*Circle 374 on Reader Service Card*

**DRILL RIGS**—Spec sheet AT-146 details the LRD-2 and sheet AT-147 describes the LRD-3.—Le Roi Div. of Westinghouse Air Brake.

*Circle 375 on Reader Service Card*

**WIRE ROPE**—Bulletins deal with 7-Flex, slings, corrosion-resisting rope, and rope assemblies.—Macwhyte Wire Rope Co.

*Circle 376 on Reader Service Card*

**ROLLER CHAIN**—Catalog No. 760 presents the line of Diamond roller chains for construction equipment.—Diamond Chain Co.

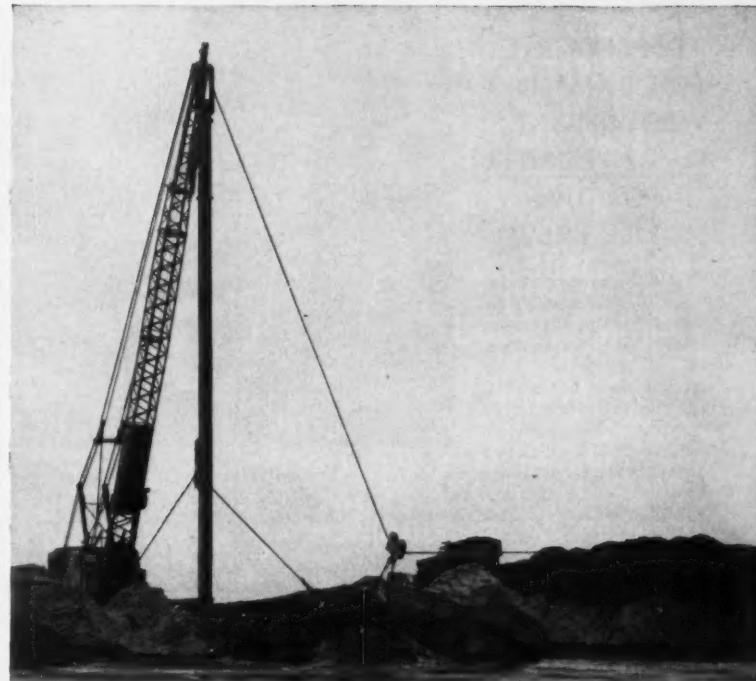
*Circle 377 on Reader Service Card*

**ASPHALT PLANTS**—Catalogs supply data on White's five models of asphalt plants ranging from 6 to 60 tons.—White Mfg. Co.

*Circle 378 on Reader Service Card*

**WELDING**—A booklet lists all Linde welding supply distributors throughout the U.S.—Linde Co., Div. of Union Carbide.

*Circle 379 on Reader Service Card*



## Shoreline Reclamation by Crescent Scraper

Several million yards of sand and gravel are being used to extend the plant area of a Canadian steel company. Bottom-dump barges are used for the initial 20 ft. of fill. The additional 10 ft. below water and up to 15 ft. above lake level is built by redistributing the barge piles along the existing shore line.

The material is redistributed by a crane using a 5-yd. Crescent Scraper Bucket and carrier. On operating spans of up to 350 ft., the crane's hoisting line is used as a track cable. It is reeved through a block at the boom tip to a tail barge anchored offshore.

The barge swings on 200 ft. of anchor cable which permits a long period of crane operation before the anchor is shifted to a new location. The crane travels along the shore reclaiming material from a pie-shaped segment with the tail barge anchor as the vertex of the angle. The Crescent Bucket returns by gravity the full 350-ft. span. At average haul distances, it delivers 200 yd. per hr.

A Sauerman Crescent Scraper and carrier with a dragline crane is often the most economical solution to difficult excavating jobs. The normal reach of the dragline is greatly extended by using a track cable with a Crescent and carrier assembly. So equipped, its range is limited only by the spooling capacity of the drums.



Tubular mast supports 80 ft. boom on track cable setup. Tail barge in background. Load line is reeved through a Sauerman Fairlead on mast.

This arrangement has been used quite successfully for contract excavating jobs involving relatively small quantities of material. In many cases where unstable ground is encountered, the crane unit may be located on firm ground and the use of mats eliminated.

Find out how much you can extend the reach of your crane and increase its capacity. Write or call giving the make, model number and boom length of your machine. Field Report 231 and Catalog J. gives more information on Scraper operations with cranes.

# SAUERMAN

612 SO. 28th AVE.  
BELLWOOD, ILL.  
Linden 4-4892 • Cable CABEX—Bellwood, Illinois

Crescent Scrapers • Slackline and Tautline Cableways • Durolite Blocks

*Circle 219 on Reader Service Card*

**DEPENDABLE  
SOIL SAMPLING  
EQUIPMENT  
IS NO PROBLEM  
FOR THIS  
DRILL CREW**

With a contract to obtain representative samples of the soil strata along the center line of an important link on the new Interstate Highway System, this contractor is using the S&H Split Barrel Sampler for recovering samples in this immediate area. At the next location, sampling for a bridge foundation, the S&H Shelby Tube Sampler will be utilized to recover the undisturbed samples that are necessary.

Sprague & Henwood's sampling equipment is designed for long, dependable service with a resulting minimum cost. The complete line of sampling devices and equipment is described in the new Bulletin 300.



**SPRAGUE & HENWOOD, Inc.  
SCRANTON 2, PA.**



MEMBER OF DIAMOND CORE DRILL MANUFACTURERS ASSOC.

New York • Philadelphia • Nashville • Pittsburgh • Grand Junction, Colo. • Tucson • Buchans Nfld.  
Export division: Sprague & Henwood International Corporation, 11 W. 42nd St., New York, N. Y.  
Circle 220 on Reader Service Card

*Where's your small engine PROBLEM?*

WEIGHT? SAFETY?  
SIZE? ECONOMY?

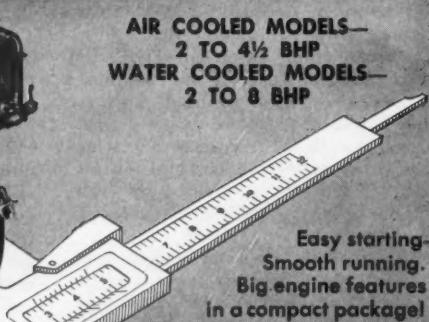
use **YANMAR**  
DIESEL POWER

AIR COOLED MODELS—

2 TO 4½ BHP

WATER COOLED MODELS—

2 TO 8 BHP



Easy starting.  
Smooth running.  
Big engine features  
in a compact package!

— a precision product of the new Japan  
made to U.S. specifications by the world's  
largest manufacturer of small diesel engines.

Immediate delivery from large U.S.  
stocks of engines, accessories and parts.

for literature and dealer information, write

**CONTINENTAL MACHINERY CORP.**

19402 So. Susana Rd., Compton, Calif. Mailing Address: P. O. B. 5300, Long Beach 5, Calif.



Circle 265 on Reader Service Card

**AD LITERATURE**

Listed below is free material offered in this issue's advertisements received up to June 15. To get the items you want, circle appropriate numbers on the SERVICE CARD inside the back cover.

**EXCAVATING** — Field report 231 and Catalog J give uses of Crescent Scraper and carrier with cranes.—Sauerman Bros.

Circle 380 on Reader Service Card

**WELDER** — Data sheet A-210 describes Model GB-318-P, a dual control welder available in 300, 400, and 600-amp sizes.—Hobart.

Circle 381 on Reader Service Card

**CASTINGS** — A 168-p. catalog presents information on Neenah's entire array of gray and ductile iron castings.—Neenah Foundry.

Circle 382 on Reader Service Card

**ENGINES** — An illustrated booklet displays the complete line of Kohler engines, which range from 4 to 24 hp.—Kohler Co.

Circle 383 on Reader Service Card

**DIESEL ENGINES** — Literature highlights small air-cooled and water-cooled models of Yanmar engines.—Continental Machinery.

Circle 384 on Reader Service Card

**FORMS** — A catalog provides information on the line of EFCO steel forms and addresses of 30 sales offices.—Economy Forms.

Circle 385 on Reader Service Card

**PULLERS** — OTC pullers with attachments and complete hydraulic maintenance sets are described in a catalog.—Owatonna Tool Co.

Circle 386 on Reader Service Card

**CLAMSHELL BUCKETS** — A 40-p. book, bulletin 2373-R, gives facts on the use and maintenance of clamshell buckets.—Blaw-Knox.

Circle 387 on Reader Service Card

**LUBRICATION** — The Lubriplate Data Book tells how to improve operation, reduce machinery maintenance costs.—Fiske Bros.

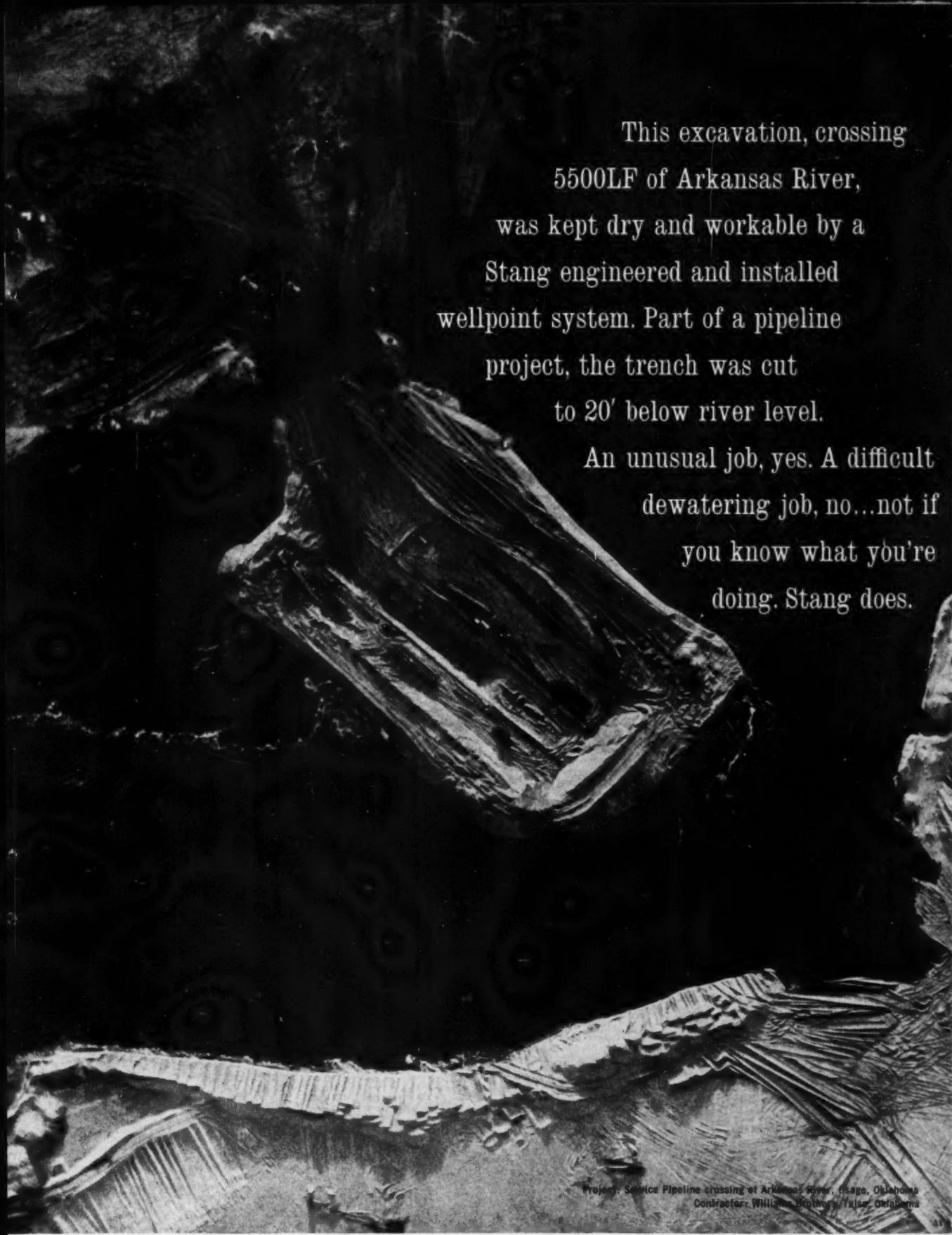
Circle 388 on Reader Service Card

**TRAILERS** — A folder presents Freuhauf's line, including hoist-type dumps, platform trailers, and insulated tanks.—Freuhauf.

Circle 389 on Reader Service Card

**LOADER** — Literature details the H-90B Payloader, available with 2½ to 5-yd buckets, also Drott 4-in-1 buckets.—Frank G. Hough.

Circle 450 on Reader Service Card



This excavation, crossing  
5500LF of Arkansas River,  
was kept dry and workable by a  
Stang engineered and installed  
wellpoint system. Part of a pipeline  
project, the trench was cut  
to 20' below river level.

An unusual job, yes. A difficult  
dewatering job, no...not if  
you know what you're  
doing. Stang does.

Project: Service Pipeline crossing of Arkansas River, Tulsa, Oklahoma  
Contractor: Williams Brothers, Tulsa, Oklahoma

JOHN W.

**STANG**

Write for the new Stang General Catalog  
CORPORATION • 8221 Atlantic Avenue • Bell, California • Tacoma • Minneapolis • Omaha • Tulsa • Mobile • St. Petersburg

Engineers and Manufacturers of Dewatering Equipment, Wellpoint and Pumping Systems • Dewatering Planning • Equipment • Service

Circle 221 on Reader Service Card

# Richmond



**SCREW ANCHORS**  
for false work support brackets



**2 & 4 STRUT TYSCRUS**  
for piers & walls

**High Tensile Systems**  
for indeterminate conditions



**SPlicer**



**REDUCING SPlicer**



## Most Tunnel Contractors use Richmond Products

In tunnel work, where time is money, contractors have come to rely on Richmond to help them save both. Richmond-engineered products are often a major factor in the profit picture.

You buy 50 years of experience in the development of products for concrete construction when you specify "Richmond". Bulletin No. 9 of our NEW Handbook describes our full line of products for tunnel forming. Write for your copy or help with any specific concreting problem. There are more than 25 Richmond Field Engineers, in addition to a service network of more than 500 Richmond Dealers, always ready to help you.

1911-1961

50 YEARS OF PROGRESS



INSIST ON RICHMOND  
... AND BE SURE IT'S RICHMOND

MAIN OFFICE: 816-828 LIBERTY AVE., BROOKLYN 8, N.Y.  
SALES OFFICES, PLANTS & WAREHOUSES: FT. WORTH, TEX.  
ATLANTA, GA. • LAUREL, MD. • ST. JOSEPH, MO. • WALTHAM,  
MASS. IN CANADA: ACROW-RICHMOND, ORANGEVILLE, ONT.

Circle 222 on Reader Service Card

## Advertisers in this month's

# Construction Methods

AND EQUIPMENT

330 WEST 42nd STREET, NEW YORK 36



McGRAW-HILL

LONGACRE 4-3000

Number of copies of this issue printed 53,004

<b>A</b>	Acme-Hamilton Mfg. Corp. .... 64 Albertson & Co., Inc. .... 52 Alemite Div., Stewart-Warner Corp. .... 26-27 Allis-Chalmers ..... 107, 108-109, 110-111, 112-113, 114 Allison Div., General Motors Corp. .... 202 American Hoist & Derrick Co. .... 118 American Manganese Steel Div. .... American Brake Shoe Co. .... 188 Associated Research, Inc. .... 197 Atlas Powder Co. .... 36-37
<b>B</b>	Barber-Greene Co. .... 66-67 Bethlehem Steel Co. .... 102, 137 Black & Decker Mfg. Co., The ..... 20-21 Blaw-Knox Co. .... Blaw-Knox Equipment Div. .... 203 Briere (USA) Corp. .... 206 Broderick & Bascom Rope Co. .... 2nd Cover Bucyrus-Erie Co. .... 200 Butler Bin Co. .... 24
<b>C</b>	Caterpillar Tractor Co. .... 43, 88-89 Chevrolet Div., General Motors Corp. .... 168-169 Cities Service Oil Co. .... 58 Clark Equipment Co. .... (Construction Machinery Div.) .... 180-181 Cleveland Trencher Co., The ..... 217 Clevite Service Div., Clevite Corp. .... 122 Construction Methods & Equipment .... 30-31 Continental Machinery Corp. .... 220 Continental Motors Corp. .... 48 Cotta Transmission Co. .... 212 Cummins Engine Co. .... 18-19
<b>D</b>	Delco-Remy Div., General Motors Corp. .... 28-29 Detroit Diesel Engine Div., General Motors Corp. .... 100-101 Diamond Chain Co. .... 119 Dixon Valve & Coupling Co. .... 179 Douglas Fir Plywood Association .... 210-211
<b>E</b>	Economy Forms Corp. .... 212 Eimco Corp., The ..... 3rd Cover Ensign-Bickford Co. .... 213 Euclid Div., General Motors Corp. .... 39, 183, 204-205
<b>F</b>	Federal-Mogul Service Div., Federal-Mogul-Bower Bearings, Inc. .... 143 Firestone Tire & Rubber Co. .... 6 Ford Motor Company .... (Ford Div.) .... 130-131 Fruehauf Trailer Co. .... 33, 34, 45 Fuller Transmission Div., Eaton Mfg. Co. .... 146
<b>G</b>	Galion Iron Works & Mfg. Co., The .... 46-47 Gar Wood Industries, Inc. .... 186-187 General Electric Co. .... (Communications Products Dept.) .... 70 (Miniature Lamp Div.) .... 201 Genext Corp. .... 172 Goodall Rubber Co. .... 55 Goodrich Industrial Products Co., The B.F. .... 1 Goodrich Tire Co., The B. F. Div. .... 22-23 The B. F. Goodrich Co. .... Goodyear Tire & Rubber Co. .... (Metal Products Div.) .... 15 Grace Manufacturing Co., W. E. .... 203 Gulf Oil Corp. .... 71, 72-73, 74
<b>H</b>	Heller & Co., Walter E. .... 178 Hobart Brothers Co. .... 48 Homelite Div., Textron Inc. .... 184-185 Hopto Div., Warner & Swasey Co. .... 3 Hough Co., The Frank G. .... 215 Huber-Warco Co. .... 135 Hy-Dynamic Co., The .... 75
<b>I</b>	Ingersoll-Rand Co. .... 25, 214 Insley Mfg. Co. .... 195 International Harvester Co. .... (Construction Equipment Div.) .... 138-139, 140-141 (Motor Truck Div.) .... 56-57
<b>J</b>	Jaeger Machine Co. .... 38, 136
<b>K</b>	Kearns & Mattison Co. .... 191, 192 Kent-Moore Organization, Inc. .... 59 Koehring Div., Koehring Co. .... 167 Kohler Co. .... 208
<b>L</b>	Lehigh Portland Cement Co. .... 54 LeRoi Div., Westinghouse Air Brake Co. .... 62-63 LeTourneau-Westinghouse Co. .... 173, 174-175 Lima, Construction Equipment Div., Baldwin-Lima-Hamilton Corp. .... 129 Linde Company, Div. of Union Carbide Corp. .... 115 Lubrication Engineers, Inc. .... 49 Lubriplate Div., Fiske Brothers Refining Co. .... 216
<b>M</b>	Mack Trucks, Inc. .... 198-199 Macwhyre Wire Rope Co. .... 53 Marion Power Shovel Co. .... Div. Universal Marion Corp. .... 99 Master Power Corp. .... 196 McGowan Pumps Div., Leyman Mfg. Corp. .... 212 Mobil Oil Co. .... Socony Mobil Oil Co., Inc. .... 10-11 Moretrench Corporation .... 69 Motorola Communication & Electronics, Inc. .... 103
<b>N</b>	National Lead Co. .... 76 Neenah Foundry Co. .... 209 Northwest Engineering Co. .... 7
<b>O</b>	Onan & Sons, Inc., D. W. .... 51 Owatonna Tool Co. .... 182 Owen Bucket Co., The .... 50
<b>P</b>	Paper, Calmenson & Co. .... 8-9 Petersen Engineering Co., Inc. .... 176 Preco, Inc. .... 216
<b>R</b>	Radio Corp. of America, (Communications Div.) .... 79 Raybestos-Manhattan, Inc., (Grey-Rock Div.) .... 106 Richmond Screw Anchor Co., Inc. .... 222 Rockwell-Standard Corp., (Transmission & Axle Div.) .... 5 Rollway Bearing Co., Inc. .... 90
<b>S</b>	Sauerman Bros. Inc. .... 219 Schwartz Manufacturing Co. .... 194 Seaman-Gunnison Div., Seaman Corporation .... 123 Shell Oil Co. .... 189 Sinclair Refining Co. .... 60 SKF Industries, Inc. .... 80 Smith Engineering Works, Sprague & Henwood, Inc. .... 44 Stanco Mfg. & Sales, Inc. .... 220 Stang Corp., John W. .... 221 Stewart-Warner Corp. (Alemite Div.) .... 26-27 Stoody Company .... 87 Stow Manufacturing Co. .... 35 Superior Concrete Accessories, Inc. .... 218 Symons Clamp & Mfg. Co. .... 2

CONSTRUCTION METHODS

# SEARCHLIGHT SECTION

(Classified Advertising)

## EMPLOYMENT BUSINESS:

## "OPPORTUNITIES"

## EQUIPMENT USED OR RESALE

Texaco, Inc.	16-17
Thew Shovel Co.	12
Timken Roller Bearing Co.	4th Cover

U	
United States Rubber Co.	
(Mechanical Goods Div.)	40-41, 142
(Truck Tires—Off-the-Road)	94
Universal Form Clamp Co.	179

W	
Warner & Swasey Co., The (Gradall/Hopto Divs.)	3
Willys Motors, Inc.	126
Worthington Corp.	91

Y	
Yale & Towne Mfg. Co. (Trojan Div.)	177

### CLASSIFIED ADVERTISING F. J. Eberle, Business Manager

Equipment	
(Used or Surplus New)	
For Sale	223

### SALES REPRESENTATIVES

NEW YORK	L. S. KELLY
OXford 5-5959	
500 Fifth Ave., New York 2, N.Y.	
PHILA.	H. THOMAS McCARRON
LOcuest 8-4330	
Six Penn Center Plaza, Phila. 3, Pa.	
ATLANTA	M. H. MILLER
(Atlanta) 875-0523	
1375 Peachtree St., N.E., Atlanta 9, Ga.	
CLEVELAND	W. E. DONNELL
Superior 1-7000	
55 Public Square, Cleve. 13, Ohio	
CHICAGO	EDWARD L. WILANDER
MOhawk 4-5800	MELVIN B. NYLUND
645 N. Michigan Ave., Chicago 11, Ill.	GEORGE K. SMITH
DALLAS	FRANK LeBEAU
Riverside 7-9721	
2100 Vaughn Bldg. Dallas 1, Texas	
DENVER	JOHN W. PATTEN
Alpine 5-2981	
Tower Blvd., 1700 Broadway, Denver 2, Colo.	
DETROIT	J. L. RICE
WOodward 2-1793	
856 Penobscot Bldg., Detroit 26, Mich.	
LOS ANGELES	NOEL HUMPHREY
HUntley 2-5450	
1125 West Sixth St., Los Angeles 17, Calif.	
HOUSTON	GENE HOLLAND
JAckson 6-1281	
Prudential Bldg., Rm. W-724, Halcombe	
Bldv., Houston 25, Texas	
PORLAND	SCOTT HUBBARD
CApital 3-5118	
Pacific Bldg., Yamhill St., Portland 4, Ore.	
SAN FRANCISCO	J. W. OTTERSON
DOuglas 2-4600	ROBERT T. KOCH
255 California St., San Francisco 11, Calif.	
United Kingdom: EDWARD E. SCHIRMER	
McGraw-Hill Publishing Co., Ltd.	
34 Dover St., London, W. I., England	
Germany, Austria:	STAN KIMES
McGraw-Hill Publishing Co., Inc., 85,	
Westendstrasse, Frankfurt/Main, Germany	
Switzerland, Italy:	MICHAEL R. ZEYNEL
France and Belgium:	
McGraw-Hill Publishing Co. Inc. 2, Place	
du Port, Geneva, Switzerland	
Other Sales Offices:	
Boston 16: Copley Square	
Cincinnati 2, Carew Tower	
St. Louis 8, Continental Bldg.	
Pittsburgh 22: Four Gateway Center	

### RUBBER PRODUCTS for IMMEDIATE DELIVERY



LOW PRICES,  
DEPENDABLE QUALITY  
FOR 40 YEARS

### WHAT EVER YOUR RUBBER NEEDS ARE!!

AIR HOSE	OIL HOSE
WATER HOSE	WELDING HOSE
SUCTION HOSE	VACUUM HOSE
DISCHARGE HOSE	SAND SUCTION HOSE
STEAM HOSE	HOSE
PILE DRIVE HOSE	DREDGE SLEEVES
HYDRAULIC HOSE	CONVEYOR BELTING
	ELEVATOR BELTING
	"V" BELTS

Write for complete catalogue

CARLYLE RUBBER CO., INC.

103-107 WARREN ST. Dibby 9-3810 NEW YORK, N.Y.

Circle 251 on Reader Service Card

### TRUCKS, READY MIX 75 Used tandem axle.

MACK—AUTOCAR—STERLING  
Gasoline and Diesel powered trucks, with rated  
7 cubic yard high discharge, separate engine  
drive mixers—Closed and Open end loading.

SMITH—JAEGER—REX  
Completely reconditioned, sand blasted and  
painted. Year of Mfg. 1953 to 1956.

Inspection Invited  
Location—Suffolk County, New York  
Price—\$4,000 to \$8,000.

Write or Phone—Carl Martucci, Port Jefferson  
Station, L. I., N. Y. Phone—HR 3-2500

Circle 252 on Reader Service Card

BUY SELL RENT

### USED STEEL

Beams—Pipes & Casing—Plate—B.P.—RR  
Trestles—Bridges

LEOPOLD COHEN IRON CO.

3000 S. Kedzie Chicago 23, Ill. BI 7-6336

Circle 253 on Reader Service Card

### NYLON TRUCK TIRES

GUARANTEED  
BEST PRICES & QUALITY  
Write for Complete Price List

HARMO TIRE & RUBBER CO.  
1800 W. Fort Tashmoo 5-7344 Detroit 16, Mich.

Circle 254 on Reader Service Card

### Euclid Loader—Model 5 BV

35-ft. Conveyor,  
Cummins 165-hp engine D8 Cat hitch, S/N 110  
H. J. WILLIAMS CO., INC.  
150 S. Sumner St. York, Pa.  
Phone 30021

Circle 255 on Reader Service Card

1953 Link Belt Model LS-85 Excavator 7A1936,  
operated by a Model D-318 Caterpillar diesel  
engine. Price—\$7,500.

1948 P. & H. Model 150 Excavator, operated  
by a 1953 Model 271 G.M. diesel. Price—  
\$2,500.

Two Mack diesel engines—Model END673—  
Mack Thermodyne Diesel, 175 H.P., 673 cubic  
inch displacement.

One with 13,925 miles, 986 hours—Price—  
\$2,500.

One with 2,587 miles, 152 hours—Price—  
\$3,000.

PETER B. GERMAN INCORPORATED  
Morehouse Highway Fairfield, Connecticut  
Tel. EDison 5-8105

Circle 256 on Reader Service Card

### Chrysler Corporation's FLEET OF THREE EXECUTIVE DC-3's

With related spare parts  
Available for Inspection

### PRICED BELOW MARKET FOR IMMEDIATE SALE

May be purchased individually

FREDERICK B. AYER & ASSOCIATES, INC.  
250 Park Ave., New York 17, N.Y.  
Murray Hill 7-1800

Circle 257 on Reader Service Card

### FOR SALE

### Bantam 6 ton crane

Diesel Powered 1957

Condition Excellent

R. D. GOLDEN  
Troy, N.Y.

Circle 258 on Reader Service Card

## Methods Memo . . .



### A Maintenance Extra

Not all the maintenance gimmicks that CM&E editors uncovered in their recent survey of contractors' shops fit neatly into a category. This work platform that fits over the front wheel of a truck is an example.

Ruckman & Hansen made the platform in their Fort Wayne shop to hold mechanics working inside the truck's hood. Reinforcing bars form a bracket strong enough to support a man's weight.

### Builders Go All Out for Education

As the first step of an ambitious industry advancement program, Philadelphia's General Building Contractors Association is sponsoring a survey of its members to determine training needs for all levels of construction personnel.

Conducted by Pennsylvania State University, the survey is designed to find out how much skilled manpower is available in the Philadelphia area, and to pin-point categories where shortages of trained personnel exist.

Then the GBCA will implement a far-reaching plan to meet the needs defined by the survey. Among the proposed projects: scholarships at local universities for the advanced study of civil engineering; establishment of a full-time associate-degree course in construction technology at a local university; grants to one or more universities for research on construction materials and techniques;

engineering refresher courses for management personnel; and off-the-job training consisting of seminars, conferences, work-shops and part-time courses for construction personnel at all levels.

### Contractor's Public Relations Backfire

The trouble started when Hendrickson Bros., Inc., called in a demolition expert to pull down abandoned houses on the right-of-way of a Long Island Expressway job. No sooner did demolition work begin than local residents made nightly forays to strip the houses of everything from bathtubs to the kitchen sinks.

Without telling Hendrickson, the demolition subcontractor called in the police to protect his dwindling stock of salvageable material. And then, when Hendrickson invited parishioners of a nearby church to help themselves to left-over shrubs, the police took them politely but firmly in hand.

It took several phone calls to straighten the matter out, but the visitors finally got their shrubs—with everyone's blessing.

### Big Rigs Will Wade in Chesapeake Bay

The joint-venture contractor building the Chesapeake Bay Bridge-Tunnel will employ an impressive array of deep-water construction rigs. A 70x 150-ft DeLong pile driving platform that floats into place and jacks itself out of the water will hold a 100-ton revolving crane. A traveling bridge will have a stiffleg derrick at each end to handle pile cut-off frames and jacking frames. Three tower-mounted 75-ton stiffleg derricks will erect high bridge steel, and a fourth stiffleg mounted on a traveler will erect low bridge girders.

Tidewater Construction Co. is sponsoring the joint venture, which also includes Merritt-Chapman & Scott Corp., Raymond International, Inc., and Peter Kiewit Sons' Co.

### Swedes Use Ammonium Nitrate

Engineers at a Swedish iron mine have developed a technique for using ammonium nitrate instead of dynamite in underground blasting. If the report is true, U. S. contractors may be able to put this cheap blasting agent to work in tunnels, where it has not been used so far because of its toxicity.

The Swedes also are testing a plastic coating for concrete dams that may be a low-cost way of stopping leaks. Last summer a small area on the upstream face of a 40-year-old Suorva Dam near the Arctic Circle was covered with an epoxy cement coating and three layers of fibreglass fabric. So far, the plastic caulking has sealed temperature cracks through which water had been flowing.

# Construction Methods

AND  
EQUIPMENT

## READER SERVICE HELPS YOU

...**GET MORE INFORMATION** about new products and services advertised or described editorially. Information is FREE. Postage paid. Just circle the key number on the Reader Service Card and drop in the mail.

...**ENTER YOUR NEW SUBSCRIPTION**—Simply fill out subscription card at right and get your own personal copy each month. We'll bill you later.

...**SEND FOR REPRINTS**—Editorial reprints described below are available. Simply circle the number corresponding to the reprint you want. You will be billed along with your order. Quantity prices furnished on request.

### NEW THIS MONTH

#### Q. & A. WITH AN EXPERT ON CENTRAL-MIX PAVING . . . 25¢

R21 What are the advantages and disadvantages of producing concrete for paving from a central-mix plant? A leading contractor gives his views, including facts and figures, based on extensive field experience with this increasingly popular procedure.

#### CONCRETE MIXING AND PLACING . . . 50¢

R2 An 88-page booklet containing a series of articles on the fundamental principles of concreting for all types of structures. Subjects include: concreting equipment selection, application, and maintenance; production factors; form planning, design, and construction; design and control of concrete mixes; handling and placing concrete; underwater concreting.

#### PRESTRESSED CONCRETE . . . 50¢

R5 A 20-page special report dealing with a variety of pre-stressing applications; commercial prestress — new market for contractors; pre-tensioning bed — assembly line for prestress products.

#### EQUIPMENT MAINTENANCE GUIDE . . . 50¢

R6 A 36-page booklet in which 15 service experts detail the proper maintenance of crawler tractors, graders, scrapers, rollers, compressors, trenchers, crushers, trucks, cranes, asphalt plants, loaders, air tools, pavers, rock drills, wheel tractors.

#### EARTH COMPACTION . . . 50¢

R20 A 32-page booklet telling how to achieve better results at less cost when compacting all types of fills and embankments. It shows how to compact various soils most efficiently, what types of machines to use to do the job best and how they should be operated on the fill. Included are a "quick soil-typing guide," a glossary, tables showing what compactors to use under various conditions, and a listing of 49 state highway departments' fill-compaction requirements (densities, lift thicknesses, equipment).

#### DOES YOUR INSURANCE PROGRAM REALLY PROTECT YOU? . . . 25¢

R8 A 12-page booklet by a construction insurance expert explains the importance of a sound program...how to strengthen liability coverage...how to protect your job and your property. Included is a check list of insurance for contractors.

#### SURETY BONDS . . . Their Function, Value and Effect . . . 25¢

R9 An 8-page article discusses the differences between bonds and insurance coverages, tells how surety risks are evaluated, and describes various types of surety bonds.

#### PROFITABLE FIELD LUBRICATION PRACTICES . . . 50¢

R19 Contractors' practices and mobile lubrication equipment are covered in a 16-page booklet that also describes a simplified lubrication program and the operations of an equipment maintenance company and of a maintenance contractor.

# **Construction Methods**

AND  
EQUIPMENT

## **BUSINESS REPLY MAIL**

No Postage Stamp Necessary If Mailed In The United States

postage will be paid by

## **Construction Methods**

AND EQUIPMENT

A McGraw-Hill Publication  
330 West 42nd Street  
New York 36, New York

READER SERVICE DEPT.  
28th FLOOR

FIRST CLASS  
PERMIT NO. 64  
(Sec. 34.9 P.L.&R.)  
NEW YORK, N.Y.



## **BUSINESS REPLY MAIL**

No Postage Stamp Necessary If Mailed In The United States

postage will be paid by

## **Construction Methods**

AND EQUIPMENT

A McGraw-Hill Publication  
330 West 42nd Street  
New York 36, New York

FIRST CLASS  
PERMIT NO. 64  
(Sec. 34.9 P.L.&R.)  
NEW YORK, N.Y.



## **BUSINESS REPLY MAIL**

No Postage Stamp Necessary If Mailed In The United States

postage will be paid by

## **Construction Methods**

AND EQUIPMENT

A McGraw-Hill Publication  
330 West 42nd Street  
New York 36, New York

READER SERVICE DEPT.  
28th FLOOR

FIRST CLASS  
PERMIT NO. 64  
(Sec. 34.9 P.L.&R.)  
NEW YORK, N.Y.



# **Construction Methods**

AND  
EQUIPMENT

## SPECIFICATION MANUAL . . . 75¢

R22 All of the following eight comp-

## CRAWLER TRACTORS . . . 10¢

R11 List covers 9 manufacturers and  
tors with horsepower ratings from  
data gives dimensions, speeds,  
and drawbar pull.

## SELF-PROPELLED SCRAPERS . . . 10¢

R12 Struck capacities of the 53 m-  
chart range from 5 to 48 cu yd  
prime mover includes data on  
and operating speeds. Other  
dimensions and weight distribu-  
10 manufacturers.

## TRACTOR-DRAWN SCRAPERS . . . 10¢

R13 Chart gives over-all dimensions  
cluding weight distribution and  
36 scrapers with struck capaci-  
yd built by 8 manufacturers.

## STEEL ROLLERS . . . 10¢

R14 Tandem and three-wheel rollers  
at least 6,000 lb are listed in the  
manufacturers and 78 models.  
trains, over-all and roll di-  
compaction.

# **Construction Methods**

AND  
EQUIPMENT

A

## READER SERVICE continued

### ...SEND FOR REPRINTS (while they last)

Use the postcards at the left to make your selection of the editorial reprints you want. Be sure to circle key number corresponding to reprint you want and fill in address blanks before mailing the postpaid reply card. Pay when you are billed. Quantity prices furnished on request.

### COMPARATIVE SPECIFICATION CHARTS

comparative spec charts bound into a handy 20-page booklet for ready reference.

#### PNEUMATIC-TIRED ROLLERS . . . 10¢

R15 Compaction figures for 52 models of rollers are given in this chart covering 19 manufacturers. Other information covers weights, over-all dimensions, wheels, and power train.

#### MOTOR GRADERS . . . 10¢

R16 Information on weights, dimensions, engines, and travel speeds in this chart covers 58 models of graders built by 7 manufacturers. Also included are data on blades and blade controls and scarifiers.

#### PORTABLE COMPRESSORS . . . 10¢

R17 List includes 10 manufacturers with 51 models of rotary and reciprocating portable compressors delivering 100 cfm or more at 100 psi. Information includes dimensions and mechanical data on compressors and engines.

#### TRACTOR SHOVELS . . . 10¢

R18 Integrally built tractor shovels are available in 101 models by 19 manufacturers. Chart includes both crawler and wheel-mounted units with bucket capacities ranging from  $\frac{1}{2}$  to 6 cu yd. Other information covers engines and power trains, maximum speeds, and over-all dimensions.

There is no charge for  
CONSTRUCTION METHODS and EQUIPMENT's  
Reader Service except for subscriptions and reprints.

NAME COMPANY ADDRESS	TITLE		
	TOTAL UNITS OF EQUIPMENT		TOTAL No. TRUCKS
REPRINTS	<input type="checkbox"/> INSIDE FRONT COVER	<input type="checkbox"/> INSIDE BACK COVER	<input type="checkbox"/> BACK COVER
HERE			
R1 R26	1 26 51 76 101 126 151 176 201 226 251 276 301 326 351 376 401 426 451 476 501 526		
R2 R27	2 27 52 77 102 127 152 177 202 227 252 277 302 327 352 377 402 427 452 477 502 527		
R3 R28	3 28 53 78 103 128 153 178 203 228 253 278 303 328 353 378 403 428 453 478 503 528		
R4 R29	4 29 54 79 104 129 154 179 204 229 254 279 304 329 354 379 404 429 454 479 504 529		
R5 R30	5 30 55 80 105 130 155 180 205 230 255 280 305 330 355 380 405 430 455 480 505 530		
R6 R31	6 31 56 81 106 131 156 181 206 231 256 281 306 331 356 381 406 431 456 481 506 531		
R7 R32	7 32 57 82 107 132 157 182 207 232 257 282 307 332 357 382 407 432 457 482 507 532		
R8 R33	8 33 58 83 108 133 158 183 208 233 258 283 308 333 358 383 408 433 458 483 508 533		
R9 R34	9 34 59 84 109 134 159 184 209 234 259 284 309 334 359 384 409 434 459 484 509 534		
R10 R35	10 35 60 85 110 135 160 185 210 235 260 285 310 335 360 385 410 435 460 485 510 535		
R11 R36	11 36 61 86 111 136 161 186 211 236 261 286 311 336 361 386 411 436 461 486 511 536		
R12 R37	12 37 62 87 112 137 162 187 212 237 262 287 312 337 362 387 412 437 462 487 512 537		
R13 R38	13 38 63 88 113 138 163 188 213 238 263 288 313 338 363 388 413 438 463 488 513 538		
R14 R39	14 39 64 89 114 139 164 189 214 239 264 289 314 339 364 389 414 439 464 489 514 539		
R15 R40	15 40 65 90 115 140 165 190 215 240 265 290 315 340 365 390 415 440 465 490 515 540		
R16 R41	16 41 66 91 116 141 166 191 216 241 266 291 316 341 366 391 416 441 466 491 516 541		
R17 R42	17 42 67 92 117 142 167 192 217 242 267 292 317 342 367 392 417 442 467 492 517 542		
R18 R43	18 43 68 93 118 143 168 193 218 243 268 293 318 343 368 393 418 443 468 493 518 543		
R19 R44	19 44 69 94 119 144 169 194 219 244 269 294 319 344 369 394 419 444 469 494 519 544		
R20 R45	20 45 70 95 120 145 170 195 220 245 270 295 320 345 370 395 420 445 470 495 520 545		
R21 R46	21 46 71 96 121 146 171 196 221 246 271 296 321 346 371 396 421 446 471 496 521 546		
R22 R47	22 47 72 97 122 147 172 197 222 247 272 297 322 347 372 397 422 447 472 497 522 547		
R23 R48	23 48 73 98 123 148 173 198 223 248 273 298 323 348 373 398 423 448 473 498 523 548		
R24 R49	24 49 74 99 124 149 174 199 224 249 274 299 324 349 374 399 424 449 474 499 524 549		
R25 R50	25 50 75 100 125 150 175 200 225 250 275 300 325 350 375 400 425 450 475 500 525 550		

7/61

THIS CARD VOID AFTER SEPTEMBER 30, 1961. \* BE SURE TO FILL IN YOUR NAME ABOVE

## Build Your Own Library of Money-Making Shortcuts

### SUBSCRIBE NOW AT THIS LOW RATE!

Enter my new subscription to Construction Methods, and bill me at the money-saving rate of only \$4 for 3 full years. (I save \$2.)

Check  if you wish 1 year for \$2

NAME	TITLE OR POSITION	
	All spaces must be filled in to start service	
ADDRESS	<input type="checkbox"/> Home	<input type="checkbox"/> Office

CITY \_\_\_\_\_ ZONE # \_\_\_\_\_ STATE \_\_\_\_\_

COMPANY \_\_\_\_\_ (If self-employed, write "SELF" above)

NATURE OF BUSINESS\* \_\_\_\_\_

\* If contracting, please check type:  Building  Highways & Streets  
 Other heavy construction  Both building and non-building

RS 7/61

Rates outside U.S.A.

Canada <input type="checkbox"/> 1 year \$4	Latin America <input type="checkbox"/> 1 year \$10	Other Foreign <input type="checkbox"/> 1 year \$15
<input type="checkbox"/> 3 years \$8	<input type="checkbox"/> 3 years \$20	<input type="checkbox"/> 3 years \$30

S-
U-

NAME	TITLE		
	TOTAL UNITS OF EQUIPMENT		TOTAL No. TRUCKS
COMPANY			
ADDRESS			

ORDER REPRINTS	<input type="checkbox"/> INSIDE FRONT COVER		<input type="checkbox"/> INSIDE BACK COVER		<input type="checkbox"/> BACK COVER		
	HERE						
R1 R26	1 26 51 76 101 126 151 176 201 226 251 276 301 326 351 376 401 426 451 476 501 526						
R2 R27	2 27 52 77 102 127 152 177 202 227 252 277 302 327 352 377 402 427 452 477 502 527						
R3 R28	3 28 53 78 103 128 153 178 203 228 253 278 303 328 353 378 403 428 453 478 503 528						
R4 R29	4 29 54 79 104 129 154 179 204 229 254 279 304 329 354 379 404 429 454 479 504 529						
R5 R30	5 30 55 80 105 130 155 180 205 230 255 280 305 330 355 380 405 430 455 480 505 530						
R6 R31	6 31 56 81 106 131 156 181 206 231 256 281 306 331 356 381 406 431 456 481 506 531						
R7 R32	7 32 57 82 107 132 157 182 207 232 257 282 307 332 357 382 407 432 457 482 507 532						
R8 R33	8 33 58 83 108 133 158 183 208 233 258 283 308 333 358 383 408 433 458 483 508 533						
R9 R34	9 34 59 84 109 134 159 184 209 234 259 284 309 334 359 384 409 434 459 484 509 534						
R10 R35	10 35 60 85 110 135 160 185 210 235 260 285 310 335 360 385 410 435 460 485 510 535						
R11 R36	11 36 61 86 111 136 161 186 211 236 261 286 311 336 361 386 411 436 461 486 511 536						
R12 R37	12 37 62 87 112 137 162 187 212 237 262 287 312 337 362 387 412 437 462 487 512 537						
R13 R38	13 38 63 88 113 138 163 188 213 238 263 288 313 338 363 388 413 438 463 488 513 538						
R14 R39	14 39 64 89 114 139 164 189 214 239 264 289 314 339 364 389 414 439 464 489 514 539						
R15 R40	15 40 65 90 115 140 165 190 215 240 265 290 315 340 365 390 415 440 465 490 515 540						
R16 R41	16 41 66 91 116 141 166 191 216 241 266 291 316 341 366 391 416 441 466 491 516 541						
R17 R42	17 42 67 92 117 142 167 192 217 242 267 292 317 342 367 392 417 442 467 492 517 542						
R18 R43	18 43 68 93 118 143 168 193 218 243 268 293 318 343 368 393 418 443 468 493 518 543						
R19 R44	19 44 69 94 119 144 169 194 219 244 269 294 319 344 369 394 419 444 469 494 519 544						
R20 R45	20 45 70 95 120 145 170 195 220 245 270 295 320 345 370 395 420 445 470 495 520 545						
R21 R46	21 46 71 96 121 146 171 196 221 246 271 296 321 346 371 396 421 446 471 496 521 546						
R22 R47	22 47 72 97 122 147 172 197 222 247 272 297 322 347 372 397 422 447 472 497 522 547						
R23 R48	23 48 73 98 123 148 173 198 223 248 273 298 323 348 373 398 423 448 473 498 523 548						
R24 R49	24 49 74 99 124 149 174 199 224 249 274 299 324 349 374 399 424 449 474 494 524 549						
R25 R50	25 50 75 100 125 150 175 200 225 250 275 300 325 350 375 400 425 450 475 500 525 550						

7/61 THIS CARD VOID AFTER SEPTEMBER 30, 1961. \* BE SURE TO FILL IN YOUR NAME ABOVE



Photo courtesy of Hercules Powder Company.

## Modern day pyramids with **EIMCO** Loaders to hold 25-million electron volts in check!

An Eimco 123 Front End Loader is shown building a barricade against Hercules Powder Company's massive Non-Destructive Test Building at Magna, Utah.

It houses a 25-million electron volt Betatron, used to X-ray rocket motors of various sizes to detect possible flaws in the propellant, case bonding, or other components. This barricade protects against possible radiation outside the building, while the Betatron is operating.

The building walls themselves are three-foot thick steel-reinforced concrete. The earth barricade backs this up. It is 54 feet thick at the bottom, tapering to five feet at the top, giving

the building the appearance of a modern day pyramid.

The dependable Eimco 123 Front End Loader easily climbs up to 42° slopes forward or reverse; instantly responds to flip-of-the-lever controls for speed or directional changes and true spin turns; gives the operator unexcelled visibility and faster on-the-go cycles of dig, load, lift and unload.

Get all the facts on the modern Eimco line of crawlers. Contact the Dealer or Branch near you, or write THE EIMCO CORPORATION, P.O. Box 300, Salt Lake City 10, Utah, U.S.A., for Bulletin LM-1097.

The **EIMCO** corporation

Head Office: Salt Lake City 10, Utah, U.S.A.  
Export Office: 52 South St., N.Y.

B-761



"Advanced Engineering and  
Quality Craftsmanship  
Since 1884"

# **When you buy Timken® rock bits you are investing in a better value for today and in the future**

Remember when you used to get 300 feet of hole from one rock bit in granite? It wasn't very long ago. Just about five years. Would you settle for the same footage today? Why should you? You can get 500 feet under identical conditions with a bit that costs less than your 300 footer.

This extra footage, this reduction in cost per foot of hole, is the sum of many improvements in rock bit design, materials and manufacture—most of them pioneered by the Timken Company.

A large share of every Timken Company sales dollar is plowed back into research and development. For example, we lease a mine to conduct experiments that lead to better, more durable, more economical rock bits. Our Research Laboratory developed a new bonding process to hold carbides more securely to bit bodies. Our Rock

Bit Engineering Department is constantly field testing new applications to overcome drilling problems. You see the results—and count the savings in dollars and cents—every time you drill a hole with Timken bits.

Underlying all these technological advancements is the philosophy of the Timken Company—Service to the customer. Our rock bit sales engineers are available for immediate service from branch offices and warehouses, located in principal cities throughout the country.

Customer service, product excellence and facilities to pioneer new developments have enabled the Timken Company to become one of the world's largest manufacturers of removable rock bits. It explains in part why Timken rock bits are preferred by so many drillers.

**The Timken Roller Bearing Company, Canton 6, Ohio**

